NEC

NEC Express5800/BladeServer Series

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NEC Express5800/120Bb-d6
User's Guide

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Keep this User's Guide handy for quick reference when necessary.

SAFETY INDICATIONS

Follow the instructions in this User's Guide for your safety to use the server.

The server contains components that may pose possible danger, hazards that may be caused by ignoring warnings, and preventive actions against such hazards.

Server components that may pose possible danger are indicated with a warning label placed on or around them as well as described in this User's Guide.

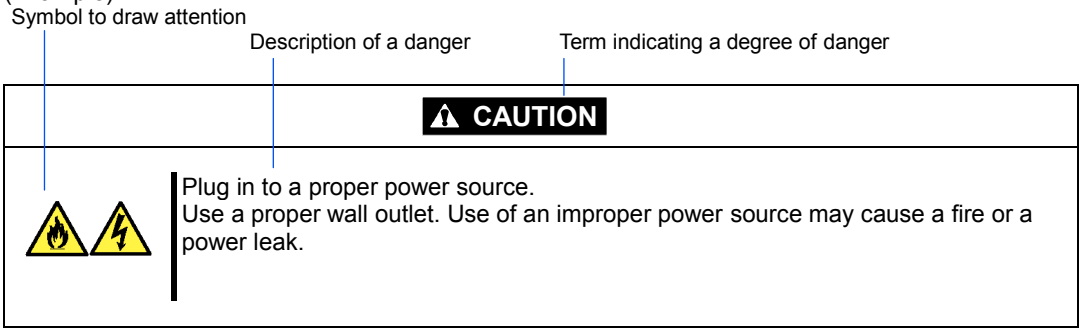
In the User's Guide or warning labels, "WARNING" or "CAUTION" is used to indicate a degree of danger. These terms are defined as follows:

⚠ WARNING	Indicates the presence of a hazard that may result in death or serious personal injury if the instruction is ignored.
⚠ CAUTION	Indicates the presence of a hazard that may cause minor personal injury, including burns, or property damage if the instruction is ignored.

Precautions and notices against hazards are presented with one of the following three symbols. The individual symbols are defined as follows:

	This symbol indicates the presence of a hazard if the instruction is ignored. An image in the symbol illustrates the hazard type. (Attention)
	This symbol indicates prohibited actions. An image in the symbol illustrates a particular prohibited action. (Prohibited Action)
	This symbol indicates mandatory actions. An image in the symbol illustrates a mandatory action to avoid a particular hazard. (Mandatory Action)

(Example)
(Example)


Symbol to draw attention
Description of a danger
Term indicating a degree of danger
⚠ CAUTION
Plug in to a proper power source.
Use a proper wall outlet. Use of an improper power source may cause a fire or a power leak.

Symbols used in this User's Guide and warning labels are listed below:

Attentions

	Indicates that improper use may cause an electric shock.
	Indicates that improper use may cause fumes or fire.
	Indicates that improper use may cause fingers to be caught.
	Indicates that improper use may cause personal injury by the moving fan blades.
	Indicates that improper use may cause personal injury.
	Indicates that improper use may cause explosion.
	Indicates a general notice or warning that cannot be specifically identified.

Prohibited Actions

	Do not disassemble, repair, or modify the server. Otherwise, an electric shock or fire may be caused.
	Do not touch any component other than specified. Otherwise, an electric shock or personal injury such as burns may be caused.
	Keep away from flame. Otherwise, a fire may be caused.
	Keep away from water or liquid. Otherwise, an electric shock or fire may be caused.
	Indicates a general prohibited action that cannot be specifically identified.

Mandatory Action

	Unplug the power cord of the server. Otherwise, an electric shock or fire may be caused.
	Indicates a mandatory action that cannot be specifically identified. Make sure to follow the instruction.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

BSMI Statement

警告使用者：

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CCC Statement

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Momentary voltage drop prevention:

This product may be affected by a momentary voltage drop caused by lightning. To prevent a momentary voltage drop, an AC uninterruptible power supply (UPS) unit should be used.

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PREFACE

Welcome to the NEC Express5800/BladeServer series server.

The NEC Express5800/BladeServer is the next generation of server technology that provides unparalleled performance. The server may be used as a workstation PC that configures a client-server system and provides high-speed processing and superior reliability.

Read this User's Guide thoroughly to fully understand handling of the server and to utilize its functions to the maximum extent.

ABOUT THIS USER'S GUIDE

This User's Guide describes how to properly set up and use the server.

This User's Guide also covers useful procedures for dealing with problems that may arise during setup or operation of the server.

Keep this manual for future use.

How to Use This User's Guide

This User's Guide contains the following information:

Chapter 1 Notes on Using Your Server
Provides information necessary to use the CPU blade. Make sure to read this chapter before setting up and using the CPU blade. It also includes requirements and advisory information for transfer and disposal of the CPU blade.

Chapter 2 General Description
Provides information necessary to use the CPU blade, such as the names and functions of its components.

Chapter 3 Setting Up Your Server
Describes how to select a site, unpack the system, connect cables, and power on your system.

Chapter 4 Configuring Your Server
Describes how to configure the system and provides instructions for running the BIOS Setup Utility and the LSI Software RAID Configuration Utility, which is used to configure a RAID array in your system.

Chapter 5 Installing the Operating System
Describes how to install the operating system.

Chapter 6 Installing and Using Utilities
Describes how to install the utilities for the server. It also describes using the attached NEC EXPRESSBUILDER DVD-ROM.

Chapter 7 Maintenance
Provides nformation necessary to maintain successful operation of the CPU blade.

Chapter 8 Troubleshooting
Provides helpful information for solving problems that might occur with your system.

Chapter 9 Upgrading Your Server
Describes how to upgrade your system with an additional processor, optional memory, optional mezzanine cards, and hard disk drives.

Appendix A Specification
Provides specifications for your CPU blade.

Appendix B Installing the Operating System
Describes how to install Microsoft Windows Server 2003 x64 Editions and Windows Server 2003 without using Express Setup.

Text Conventions

The following conventions are used throughout this User's Guide. For safety symbols, see "SAFETY INDICATIONS" provided earlier.

IMPORTANT:	Items that are mandatory or require attention when using the server
NOTE:	Helpful and convenient piece of information

IN THE PACKAGE

The package contains various accessories, as well as the server itself. Check the packing list to make sure that everything is included and that individual components are not damaged. If you find any component is missing or damaged, contact your service representative.

- Store the accessories in a safe place. You will need them to install an optional device or troubleshoot the server, as well as to set it up.
- Make backup copies of any included floppy disks. Store the original disks in a safe place and use the copies when necessary.
- Improper use of a provided floppy disk or CD-ROM may alter your system environment. If you encounter an error, contact your service representative.

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Chapter 1

Notes on Using Your Server

This chapter includes information necessary for proper and safe operation of the server.

SAFETY NOTES

This section provides notes on using the server safely. Read this section carefully to ensure proper and safe use of the server. For symbols, see "SAFETY INDICATIONS" provided earlier.

⚠ WARNING

Do not use the server for services where critical high availability may directly affect human lives.

The server is not intended to be used with or control facilities or devices concerning human lives, including medical devices, nuclear facilities and devices, aeronautics and space devices, transportation facilities and devices; and facilities and devices requiring high reliability. NEC assumes no liability for any accident resulting in personal injury, death, or property damage if the server has been used in the above conditions.

Do not disassemble, repair, or alter the server.

Never attempt to disassemble, repair, or alter the server on any occasion other than described in this User's Guide. Failure to follow this instruction may cause an electric shock or fire as well as malfunctions of the server.

Do not remove the lithium battery.

The server contains a lithium battery. Do not remove the battery. Placing the battery near a flame or in water may cause an explosion.

When the server does not operate properly due to a dead lithium battery, contact your service representative. Do not disassemble the server to replace or recharge the battery yourself.

Do not use the server if any smoke, odor, or noise is present.

If smoke, odor, or noise is present, immediately turn off the system and disconnect the power plug from the outlet, then contact your service representative. Using the server in such conditions may cause a fire.

Keep needles or metal objects away from the server.

Do not insert needles or metal objects into ventilation holes in the server. Doing so may cause an electric shock.

Use the devices only in the specified areas.

CPU blades and hard disk drives should be installed in a dedicated Blade Enclosure. Do not install CPU blades and hard disk drives in a chassis other than a Blade Enclosure. Failure to do so may result in fire and/or electric shock.

⚠ WARNING

Do not handle the CPU blade if it is installed in the Blade Enclosure.

To install or remove an option from the CPU blade, first turn off the power of the CPU blade and remove the CPU blade from the Blade Enclosure. If you touch parts on the CPU blade with it is connected to the Blade Enclosure, you may receive an electric shock.

Do not install or remove more than one CPU blade at a time.

Install or remove CPU blades one by one. If you install or remove more than one CPU blade at a time or a CPU blade with the cover of another slot removed, you may receive an electric shock.

Do not use the equipment in a place where corrosive gases exist.

Make sure not to locate or use the server in a place where corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc) exist.
Also, do not locate it in an environment where the air (or dust) includes components accelerating corrosion (ex. sulfur, sodium chloride) or conductive metals. There is a risk of a fire due to corrosion and shorts of the internal printed circuit board.

⚠ CAUTION

Keep water or foreign matter away from the CPU blade.

Do not let any form of liquid (water etc.) or foreign matter (e.g., pins or paper clips) enter the server. Failure to follow this warning may cause an electric shock, a fire, or a failure of the server. When such things accidentally enter the server, immediately turn off the power and disconnect the power plug from the outlet. Do not disassemble the server. Contact your service representative.

Make sure to complete device installation.

Always install a CPU blade, hard disk drive, and option board firmly. An incompletely installed device may cause a contact failure, resulting in smoke or fire.

Do not use any unauthorized interface cable.

Use only interface cables provided by NEC and locate a proper device and connector before connecting a cable. Using an unauthorized cable or connecting a cable to an improper destination may cause a short circuit, resulting in a fire.
Also, observe the following notes on using and connecting an interface cable.

- Do not use a damaged cable connector.
- Do not step on the cable.
- Do not place any object on the cable.
- Do not use the Blade Enclosure with loose cable connections.

⚠ CAUTION

Avoid installation in extreme temperature conditions.

Immediately after the server is powered off, its internal components such as hard disk drives are very hot. Leave the server until its internal components fully cool down before installing/removing any component.

Avoid contact with the server during thunderstorms.

Disconnect the power plug from the outlet when a thunderstorm is approaching. If it starts thundering before you disconnect the power plug, do not touch any part of the server including the cables. Failure to follow this warning may cause a fire or an electric shock.

Keep animals away from the server.

Animal waste or hair may enter the CPU blade and cause a fire or electric shock.

FOR PROPER OPERATION

Observe the following notes for proper operation of the server. Failure to observe these notes may cause a malfunction of the server.

- CPU blade
  - N8400-064AF/065AF/066AF/067AF CPU blade assembly can be installed in the Blade Enclosure (SIGMABLADE).
  - Install or remove CPU blades one at a time.
  - Hold the portions covered with metal plates when a CPU blade is installed or removed. To carry a CPU blade, put it into the case in which it was packaged during shipping.
  - The CPU blade is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the CPU blade. Do not touch the CPU blade terminals or on-board parts with your bare hands or place the CPU blade directly on a desk.
  - Check and adjust the system clock after:
    - Transporting the server
    - Storing the server
    - The server halts due to environmetal operating conditions being exceeded (temperature: 10°C - 35°C, humidity: 20% - 80%)

    Check the system clock once a month. It is recommended to synchronize the system clock using a time server (NTP server) when a high degree of time accuracy is required. If the system clock fails to maintain sychronization despite being adjusted, contact your sales agent.
  - Store the unit under storage conditions (temperature: -10°C - 55°C, humidity: 20% - 80%, without condensation) to ensure it functions correctly when it is used again.
  - Before turning off the power of a CPU blade, shut it down correctly.
  - Turn on the power of the CPU blade by using the POWER switch or the remote power-on function after waiting 30 seconds or longer after supplying AC power to the power unit (the POWER lamp of the CPU blade lights amber). The CPU blade may not turn on if you do not wait at least 30 seconds after supplying AC power.
  - After turning off the power of a CPU blade, wait at least 30 seconds before turning it on again.
  - Remove a CPU blade after turning off its power.

- The CPU blade contains precision components that are easily affected by drastic temperature changes. If the CPU blade is used after storage or relocation, make sure that it is fully adapted to the operating environment.
- Make sure that any optional devices are compatible with the CPU blade. Even if an optional device can be installed or connected to the CPU blade, it may not operate properly and may damage the CPU blade.
- Do not perform any of the following operations during POST (including similar operations from the EM card and external applications):
  - Press the POWER switch of the CPU blade.
  - Press the RESET switch of the CPU blade.
  - Remove the CPU blade from the Blade Enclosure.
  - Disconnect the power cord from the power unit of the Blade Enclosure.

■ Hard disk drive

- The hard disk drive is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the hard disk drive. Do not touch the hard disk drive terminals or on-board parts with your bare hands or place the hard disk drive directly on a desk.
- Protect the hard disk drive from excessive shock or vibration. Failure to do so may cause the hard disk drive to fail.
- The hard disk drive should be compatible with the blade server.
- Confirm the slot to which the hard disk drive is inserted.
- The hard disk drive contains precision components that are easily affected by drastic temperature changes. If the hard disk drive is used after storage or relocation, make sure that it is fully adapted to the operating environment.

■ Optional memory, processor, mezzanine card, board, and other electronic components

- These components are extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the components. Do not touch the terminals or parts on the components with your bare hands or place the components directly on a desk.
- Make sure that any optional devices are compatible with the blade server. Even if an optional device can be installed or connected to the server, it may not operate properly and may damage the server.
- The optional devices contain precision components that are easily affected by drastic temperature changes. If the devices are used after storage or relocation, make sure that they are fully adapted to the operating environment.
- It is recommended to use optional devices provided by NEC. Some memory devices and hard disk drives from other vendors are designed to be used with the server. However, ff such a device malfunctions and damages the server, you will be charged the repair even within the warranty period.

■ Do not use a cellular phone or pager around the server.

Turn off cellular phones or pagers. Radio interference may cause malfunctions of the server.

TRANSFER TO THIRD PARTY

The following must be observed when you transfer (or sell) the server and included software to a third party:

Server

Make sure to provide this manual along with the server to a third party.

Provided Software

To transfer or sell any software application that comes with the server to a third party, the following requirements must be satisfied:

- All provided software applications must be transferred and no backup copies must be retained.
- The transfer requirements listed in "Software License Agreement" that comes with each software application must be satisfied.
- Software applications that are not approved for transfer must be uninstalled before transferring the server.

DISPOSAL AND CONSUMABLES

- Dispose of the CPU blade, hard disk drives, Blade Enclosure, option board, floppy disks, and CD/DVD-ROMs according to all national laws and regulations. Also dispose of the power cord provided with the server to prevent it from being used with other devices.

IMPORTANT:

- For disposal (or replacement) of the battery on the motherboard of the server, consult with your service representative.
- Erase all hard disks, backup data cartridges, floppy disks, or other writeable media (e.g., CD-R and CD-RW discs) to prevent your data from being restored and used by a 3rd party. Exercise sufficient caution to protect your privacy and confidential information.

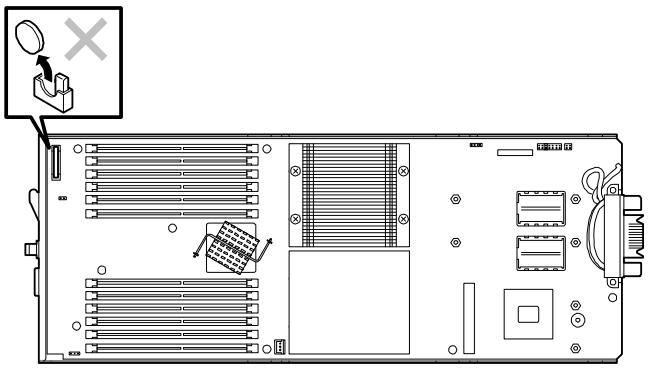
- The server contains components that have limited lifetimes and require replacement. For stable operation of the server, NEC recommends you replace these components on a regular basis. Consult with your service representative for replacement these components.

⚠ WARNING

Do not remove the battery.

The server contains a lithium battery (some optional devices may contain a lithium, nickel cadmium, or nickel hydrogen battery). Do not remove the battery. Placing the battery near a flame or in water may cause an explosion.

For the location of the battery on an optional device, refer to the manual provided with the device.



CPU blade

USER SUPPORT

If the server does not function correctly, do the following before requesting repair:

1. Check that the power cord and the cables to other devices are properly connected.
2. See Chapter 8 to check whether your problem is described. If it is, follow the recommended procedure to resolve it.
3. Check that the software required for operation of the server is properly installed.

If the server still does not work properly after you have taken the above actions, consult with your service representative immediately. Take note of the lamp indications of the server and alarm indications on the display unit before consultation, which may provide information to your service representative.

Advice for Health

Prolonged use of a computer may affect your health. Keep in mind the following to reduce stresses on your body:

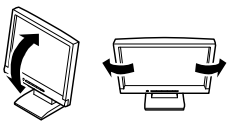
Good Working Posture

Sit in your chair with your back straight. If the desk height is correct, you will look down at the screen slightly and your forearms will be parallel to the floor. This “good” work posture can minimize muscle tension caused by sedentary work.

If you sit in a “bad” posture—for example, sit round-shouldered or with you face too close to the display—you may easily suffer fatigue or eyestrain.

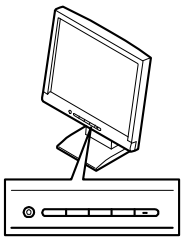
Adjust Display Angle

Most types of displays allow you to adjust the angle vertically and horizontally. This adjustment is very important to prevent the reflection of light as well as to make the screen more comfortable to see. Without this adjustment, it is difficult to maintain a “good” work posture. Be sure to adjust the angle before using the display.



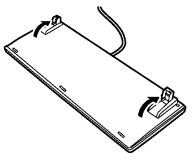
Adjust Screen Brightness and Contrast

Displays allow you to adjust brightness and contrast. Optimum brightness and contrast vary depending on the individual, brightness of the room, etc. If the screen is too bright or too dark, it can cause eyestrain.



Adjust Keyboard Angle

Some types of keyboards allow you to adjust the angle. If you adjust the angle to make the keyboard more comfortable to use, you can greatly reduce stresses on your shoulders, arms, and fingers.

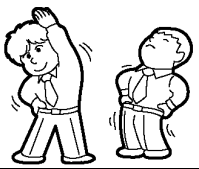


Clean Equipment

Cleanliness of the equipment is very important not only for appearance but also for function and safety. Regularly clean the display, which may become difficult to see due to the accumulation of dust.

Fatigue and Rest

If you feel tired, refresh yourself by taking a short break or doing light exercise.



Chapter 2

General Description

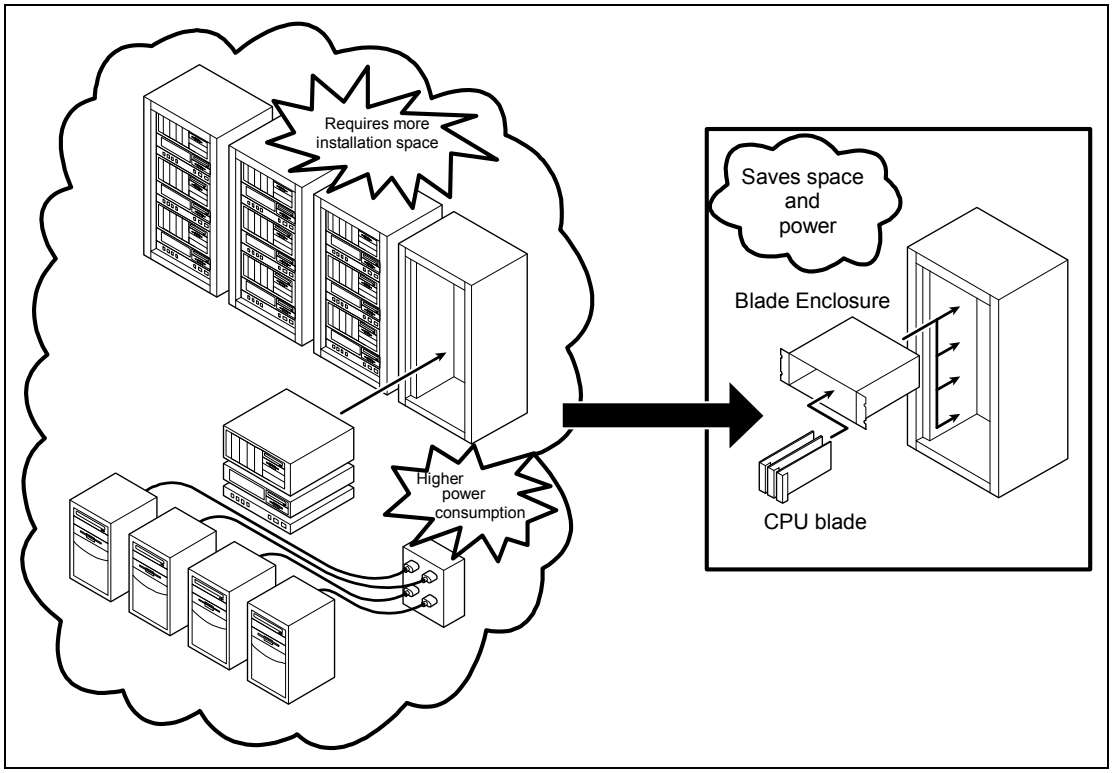
This chapter provides information that you should be familiar with before using the server. It includes names and functions of the components and features of the server.

OVERVIEW

A BladeServer is a modular, multiprocessing system that includes a processor, memory, network connection, optional add-in card slot, and associated electronics on a single motherboard, which is called a CPU blade.

A CPU bladeis typically installed into a rack-mountable enclosure that houses multiple CPU blades that share common resources, such as cabling, power supplies, and cooling fans.

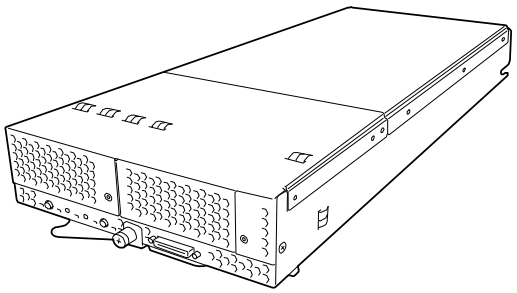
This high-density technology reduces the installation space, lowers the total cost of ownership, and offers increased computing density while ensuring both maximum scalability and ease of management.



STANDARD FEATURES

High performance

- Dual-Core Intel® Xeon® Processor
  Quad-Core Intel® Xeon® Processor
- DDR2-667 SDRAM FB-DIMM
- High-speed 1000BASE-T interface x2 (1Gbps supported)
- High-speed disk access (SAS)



Management Utilities

- NEC ESMPRO
- NEC DianaScope
- Remote monitoring feature (EXPRESSSCOPE engine)

Maintenance Features

- Off-line Maintenance Utility
- Memory dump feature using the DUMP switch

Expandability

- Two mezzanine card slots
- 48GB maximum memory capacity
- Up to two processors
- Two network ports
- Two USB 2.0 interface ports

High-reliability

- Memory monitoring feature (correction of correctable error/detection of uncorrectable error)
- CPU degradation feature (logical isolation of a failed device)
- Bus parity error detection
- Temperature detection
- Error notification
- Internal voltage monitoring feature
- BIOS password feature

Available Features

- Software power-off
- Remote power-on feature
- AC-Link feature

Self-diagnosis

- Power On Self-Test (POST)
- Test and Diagnosis (T&D)

Easy Setup

- NEC EXPRESSBUILDER (system management tools)
- SETUP (BIOS setup utility)
- LSI Software RAID Configuration Utility (RAID configuration utility)

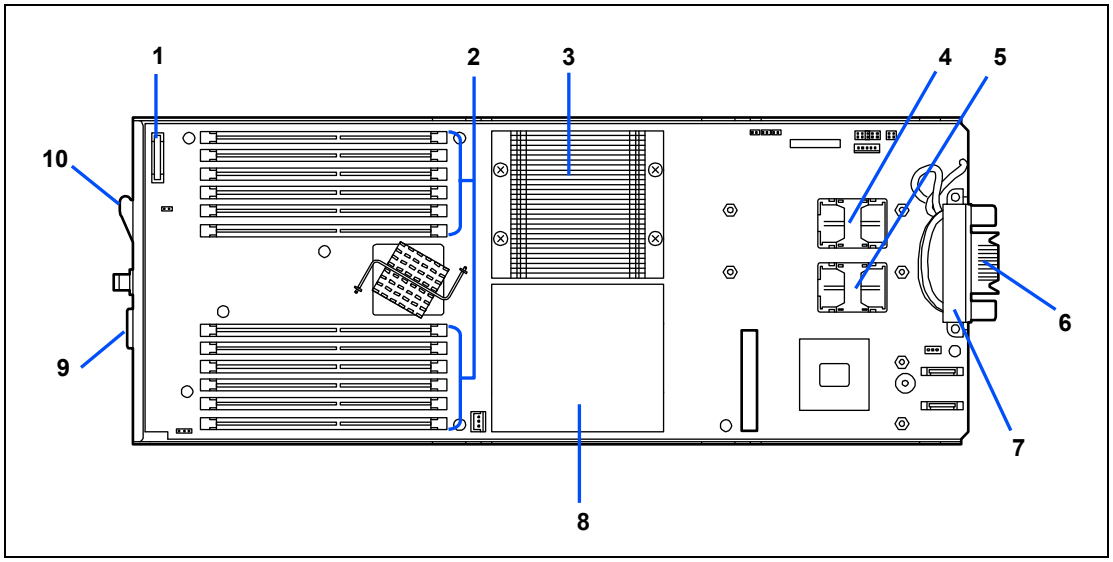
PART NAMES AND CONTROLS

This section describes the names and features of the components of the CPU blade.

CPU Blade

This section describes the names, installation positions, and features of the components of the CPU blade.

Onboard Components



1 Lithium battery

2 DIMM socket
#1, #5, #9, #2, #6, #10, #11, #7, #3, #12, #8, #4 from top

3 Heat sink
Install the processor #1 (CPU #1) below this heat sink.

4 Type II mezzanine slot
Slot to install mezzanine card

5 Type I mezzanine slot
Slot to install mezzanine card

6 MP connector
Used to connect with the midplane in the Blade Enclosure.

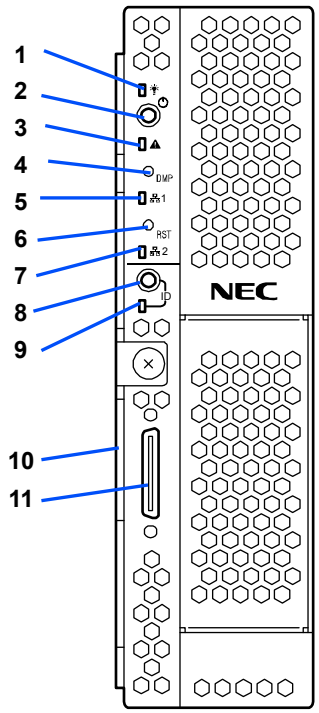
7 MAC address label

8 Dummy heat sink
Install the processor #2 (CPU #2) below this heat sink.

9 SUV connector

10 Eject lever

CPU Blade Access Side



1 POWER lamp

The lamp lights green when the CPU blade is powered on.
The lamp lights amber when the CPU blade is powered off but power is supplied from the power supply unit.

2 POWER switch

The switch turns on or off the power of the CPU blade itself. Pressing the switch for 4 seconds or longer causes the power supply to be turned off forcibly.

3 STATUS lamp (green/amber/red)

The lamp indicates the status of the CPU blade. See "Lamp Indications" described later for the indications of the lamp.

4 DUMP switch

Press this switch to run the memory dump.

5 LAN1 Link/Access lamp (green)

The lamp is on when LAN port 1 is connected to the network. The lamp blinks when data is being transmitted.

6 RESET switch

Press this switch to reset the CPU blade.

7 LAN2 Link/Access lamp (green)

The lamp is on when LAN port 2 is connected to the network. The lamp blinks when data is being transmitted.

8 ID switch
Press this switch to turn on or off the ID lamp.

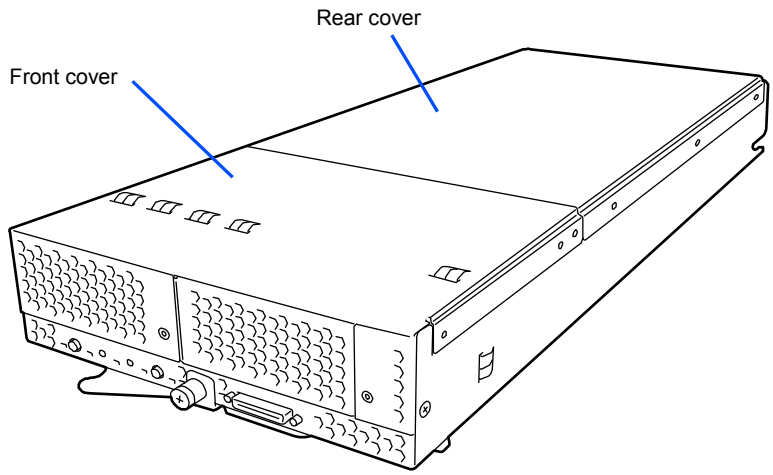
9 ID lamp (blue)
The lamp identifies the CPU blade in the system. The lamp is lit by a switch or software command.
When the recognize command is received, the lamp blinks. If you press the ID switch, the lamp goes on.

10 Eject lever
Pull the lever to remove the CPU blade from the Blade Enclosure.

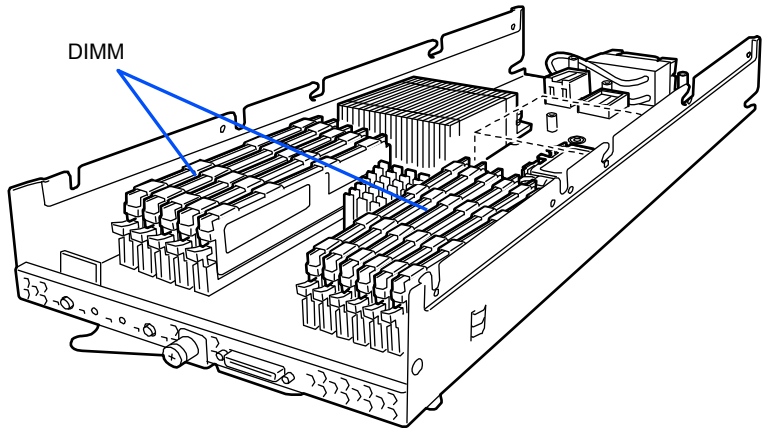
11 SUV connector
This connector sends or receives various signals.
The K410-150(00) SUV cable is connected to this connector.

12 Hard disk drive (left: slot 0, right: slot 1)

External View



CPU blade with its cover installed



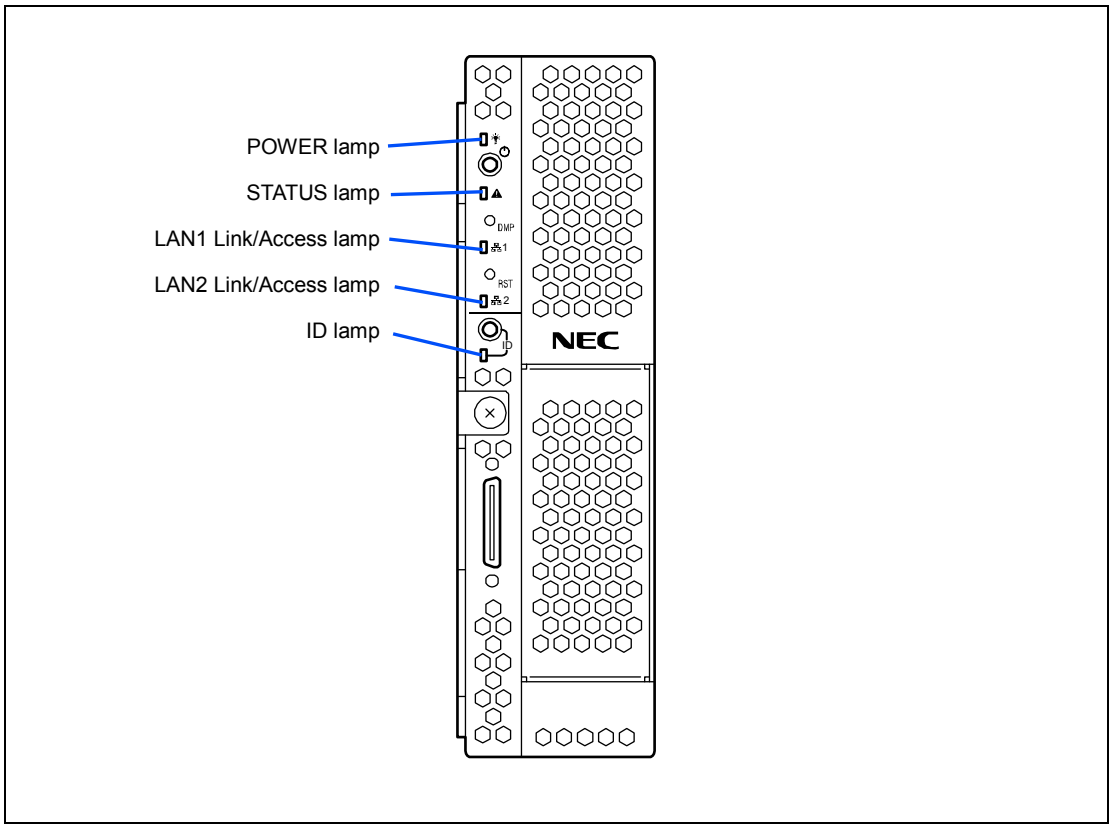
CPU blade with its cover removed

Lamp Indications

This section describes the positions, indications, and descriptions of the lamps on the CPU blade and hard disk drive.

CPU Blade

The CPU blade includes five lamps.



POWER Lamp

The POWER lamp lights green while the power of the CPU blade is on. The lamp lights amber when the CPU blade is powered off but power is supplied from the power supply unit. The lamp is off if power is not supplied to the system.

STATUS Lamp

The STATUS lamp lights green when the CPU blade is operating normally. When the STATUS lamp is flashing amber or red, it indicates that the system has failed.

In addition, you can view detailed information on the error message on the virtual LCD when the STATUS lamp is flashing amber or red.

You can use the virtual LCD through the Web browser of EXPRESSSCOPE engine (BMC) or NEC DianaScope Manager.

The following tables lists the indications of the STATUS lamp, their descriptions, and the actions to take.

If an error occurs, contact your service representative.

NOTE: If the CPU blade has NEC ESMPRO installed, you can view the System Event Log (SEL) to identify the cause of an error.

STATUS lamp indications

STATUS lamp		Description	Action
Status	**Color**		
On	Green	The CPU blade is operating normally.	–
Off	–	The power is turned off.	Turn on the power.
On	Red	BMC is being initialized.	1. Wait until the lamp goes off. 2. If the lamp is still on, check installation of the CPU blade.
Flash	Red	See the table "Virtual LCD indications when STATUS lamp is flashing red" described later.	
Flash	Amber	See the table "Virtual LCD indications when STATUS lamp is flashing amber" described later.	

NOTE: If the CPU blade is powered off while the STATUS lamp is flashing amber or red, the indication of the STATUS lamp is retained. When the CPU blade is powered on, the STATUS lamp lights green (normal status).

Virtual LCD indications when STATUS lamp is flashing red

On-screen message	Description	Action
Proc 1 IERR	An error was detected in CPU#1.	1. Turn off the power and then turn it on again. 2. If an error message appears on the POST screen, check the message. 3. If no error message appears, check the system by using the Off-line Maintenance Utility.
Proc 2 IERR	An error was detected in CPU#2.	
WDT Timeout	Watchdog timer timeout error occurred.	
WDT Power Down	Forcibly powered off due to watchdog timer timeout error.	
SMI Timeout	A timeout error occurred while the system management interrupt process is in progress.	
ErrPause in POST	The system is waiting for key entry due to serious POST error.	Check the error message on the POST screen.
DUMP Request !	Under memory dump request.	Wait until dump collection completes.
Memory U-Err XX	An uncorrectable memory error was detected. XX denotes the DIMM slot number with 1-origin that contains the failed DIMM.	1. Check the installation status of the DIMM. 2. Replace the DIMM.
Proc Missing	No CPU is installed in slot CPU#1.	Check the installation status of the CPU. Check if the installed CPU is supported by the system. Check the CPU combination, such as the frequency of CPU#1 and CPU#2.
Proc1 Config Err	The CPU installed in the CPU#1 slot is unsupported or its combination is illegal.	
Proc2 Config Err	The CPU installed in the CPU#2 slot is unsupported or its combination is illegal.	
BB Mez1 PwFault	An error was detected in power circuit of mezzanine card installed in Type I slot.	1. Check the installation status of the mezzanine card. 2. Replace the mezzanine card.
BB Mez2 PwFault	An error was detected in power circuit of mezzanine card installed in Type II slot.	
Proc1ThermalTrip	Forced power-off occurred due to a thermal error in CPU#1.	Check if the fans in the Blade Enclosure work normally. Check the heat sink of the CPU blade. Refer to the User's Guide of the Blade Enclosure to make sure that a sufficient number of fans are installed. Check if the fans and CPU blades are installed in the correct locations. Check if the ambient temperature of the installation location satisfies the operating conditions.
Proc2ThermalTrip	Forced power-off occurred due to a thermal error in CPU#2.	
Proc1 Therm % 09	A high temperature error was detected in CPU #1.	
Proc2 Therm % 09	A high temperature error was detected in CPU #2.	
AmbientTempAlm09	A high temperature error was detected in chassis.	
AmbientTempAlm02	A low temperature error was detected in chassis.	Check if the ambient temperature of the installation location satisfies the operating conditions.

On-screen message	Description	Action
Battery Alm XX	A battery voltage alarm was detected. XX=09: Upper limit alarm XX=02: Lower limit alarm	1. Check the installation status of the battery. 2. Replace the battery.
Proc1 Vccp AlmXX Proc2 Vccp AlmXX BB FSBvtt Alm XX BB DIMMvtt AlmXX BB +1.2v Alm XX BB +1.5v Alm XX BB +1.8v Alm XX BB +3.3v Alm XX BB +5v Alm XX BB +1.2vs Alm XX BB +1.5vs Alm XX BB +1.25vs AlmXX BB +3.3vs Alm XX BB +5vs Alm XX BB +12vs Alm XX	A voltage alarm was detected. XX=09: Upper limit alarm XX=02: Lower limit alarm	Replace the CPU blade.

Virtual LCD indications when STATUS lamp is flashing amber

On-screen message	Description	Action
Mem Reconfigured	The memory is degraded.	1. Check the installation status of the DIMM. 2. Replace the DIMM.
Mem Err Disable	Correctable memory error frequently occurs.	
CPU Reconfigured	The CPU is degraded.	1. Check the installation status of the CPU. 2. Replace the CPU.
E-Keying Error	In the Blade Enclosure, combination of installation locations of CPU blade, mezzanine card, and switch module is not correct. Thus, an unconformity of interface signal was detected and the CPU blade failed to power on.	Refer to the User's Guide of the Blade Enclosure for the correct installation locations.
Location Error	In the Blade Enclosure, the installation location of CPU blade is incorrect, or the installation locations of the fan and CPU blade are incorrect. Thus, the CPU blade failed to power on.	Refer to the User's Guide of the Blade Enclosure to check if the CPU blade is installed in the correct location. Check the installation locations of the fan and CPU blade.

On-screen message	Description	Action
Cooling Error	In the Blade Enclosure, the number of fans installed is insufficient or the installed fan is faulty. Thus, the CPU blade failed to power on due to insufficient cooling power.	Check if the fans in the Blade Enclosure work normally. Refer to the User's Guide of the Blade Enclosure to make sure that a sufficient number of fans are installed. Check if the fans and CPU blades are installed in the correct locations. Check if the ambient temperature of the installation location satisfies the operating conditions.
Proc1 Therm % 07	A high temperature warning was detected in CPU #1.	
Proc2 Therm % 07	A high temperature warning was detected in CPU #2.	
AmbientTempAlm07	A high temperature warning was detected in chassis.	
AmbientTempAlm00	A low temperature warning was detected in chassis.	Check if the ambient temperature of the installation location satisfies the operating conditions.
Battery Alm XX	A battery voltage warning was detected. XX=07: Upper limit warning XX=00: Lower limit warning	1. Check the installation status of the battery. 2. Replace the battery.
Proc1 Vccp AlmXX Proc2 Vccp AlmXX BB FSBvtt Alm XX BB DIMMvtt AlmXX BB +1.2v Alm XX BB +1.5v Alm XX BB +3.3v Alm XX BB +5v Alm XX BB +1.2vs Alm XX BB +1.5vs Alm XX BB +1.25vs AlmXX BB +3.3vs Alm XX BB +5vs Alm XX BB +12vs Alm XX	A voltage warning was detected. XX=07: Upper limit warning XX=00: Lower limit warning	Replace the CPU blade.

LAN (1 - 2) Link/Access Lamps

The lamp is on when the LAN port is connected to the network. The lamp blinks when data is being transmitted. When the CPU blade is powered on, it becomes ready to link with the network. The connection of the LAN port is physically controlled by the EM card and the switch module installed in the Blade Enclosure.

To check the connection status of the LAN port, refer to the User's Guide of the EM card and the switch module installed in the Blade Enclosure.

ID Lamp

Pressing the ID switch turns the lamp on, and pressing it again turns the lamp off. The ID lamp identifies a specific CPU blade in a system where more than one CPU blade is installed. Turning this lamp on can help to identify a faulty device.

If you press the ID switch, the lamp turns on. When the recognize command is received from management software such as NEC ESMPRO Manager and NEC DianaScope Manager, the lamp blinks.

USING YOUR SERVER

This section describes the basic operation of the blade server.

Power-on of Blade Server

There are two ways to turn on the power of the CPU blade. Turn on the power of the CPU blade after turning on the power of the display unit and peripherals connected to the CPU blade.

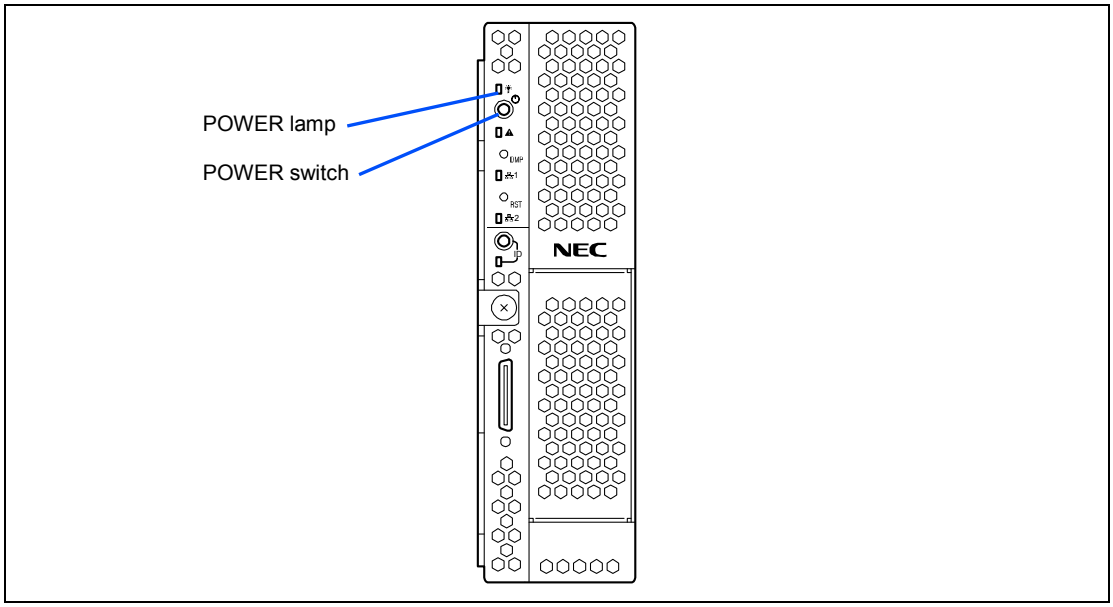
IMPORTANT: Turn on the power of the CPU blade by using the POWER switch or the remote power-on function after waiting 30 seconds or longer after supplying AC power to the power unit (the POWER lamp of the CPU blade lights amber). The CPU blade may not turn on if you do not wait at least 30 seconds after supplying AC power.

NOTES:

- If a power cord on the Blade Enclosure is connected to a power controller that includes an uninterruptible power supply (UPS), make sure that the power of the power controller is turned on.
- When power is supplied to the server, the initial diagnosis is executed for about 30 seconds. During this period, the POWER switch is disabled. Power on the server about 30 seconds after you install the CPU blade or turn on the server.

Power ON from CPU Blade

Press the POWER switch on the panel of the CPU blade (the POWER lamp on the CPU blade lights green).



Power ON from Network Serial Port

Depending on the BIOS setting of the CPU blade, the CPU blade may be turned on by a packet received from the network or via the modem connected to the serial port.

This power-on procedure can be specified by setting [Wake On Events] of [System Hardware] in the BIOS SETUP Utility.

Operation after Power ON

If the CPU blade is connected to a display unit, the NEC logo appears on the screen of the display unit after power-on.

While the NEC logo appears, the CPU blade runs the self-diagnosis program (POST). See "POST" described later for details. At the completion of POST, the operating system is booted.

NOTE: If a fault is found during POST, POST is interrupted and an error message appears. See Chapter 8.

Power-off of Blade Server

Turn off the power in the following procedure. If a power cord of the Blade Enclosure is connected to a UPS, refer to the manual provided with the UPS or the manual of the application controlling the UPS.

1. Shutdown the operating system.
2. Press the POWER switch on the CPU blade.
   The POWER lamp on the CPU blade lights amber.

   <When the power of the entire system is turned off>

   Shutdown all the CPU blades installed in the Blade Enclosure, turn off the power, and remove all the power cords from the Blade Enclosure.

POST

POST (Power On Self-Test) is the self-diagnostic program of the CPU blade.

When you power on the CPU blade, the system automatically runs POST to check the motherboard, ECC memory, CPU, keyboard, and mouse. POST also displays messages of the BIOS SETUP utility, such as the startup message, while in progress.

With the factory setup of the CPU blade, the NEC logo appears on the display unit (if connected) while POST is in progress. To display the POST check results, press **Esc**.

> **NOTE:** You can set the POST check results to appear on the display unit without pressing **Esc**. Select "Enabled" for "Boot-time Diag Screen" in the Advanced menu of the BIOS SETUP utility. See Chapter 4 for details.

You do not always need to check the POST check results. Check the messages that POST displays when:

- You use the blade server for the first time.
- The server fails.
- The server beeps several times between power-on and operating system startup.
- An error message appears on the display unit.

POST Execution Flow

The following describes the progress of POST:

IMPORTANT:

- Do not make unnecessary key entries or perform mouse operations while POST is in progress.
- Some system configurations that have an optional board installed may display the message "Press Any Key" to enter the board's BIOS setup. Refer to the manual provided with the optional board for details.
- After you install or remove an optional mezzanine card, POST may halt and display a message indicating an incorrect board configuration.
  In this case, press **F1** to continue POST. The board configuration can be changed by using a utility described later.

1. After power-on, POST starts checking the memory. The amount of basic and expansion memory appears on the screen of the display unit (if connected). The memory check may take a few minutes to complete depending on the memory size of the CPU blade. Also, it may take approximately one minute for the screen display to appear after rebooting the CPU blade.
2. Some messages appear upon completion of the memory check. These messages indicate that the system has detected the CPU and other installed devices.
3. After a few seconds, POST displays the following message prompting you to enter the BIOS setup utility. The following message appears at the bottom left of the screen:

   ```
   Press <F2> to enter SETUP
   ```

   Launch the BIOS SETUP utility when you need to change the settings of the CPU blade. As long as the above message is not displayed with an error message, you do not have to launch the utility. POST will automatically proceed.

   To launch the SETUP utility, press **F2** while the above message is displayed. See Chapter 4 for setup and parameters.

   The CPU blade automatically restarts POST when you exit the SETUP utility.
4. If the server has an optional board installed, POST displays the board information on the screen.

   Refer to the manual provided with the board for details.

   POST will automatically proceed a few seconds later.

5. If you have set the password using the BIOS SETUP utility, the password entry screen appears upon successful completion of POST.

   Up to three password entries will be accepted. Three incorrect password entries disable the system. In this case, turn off the power and wait about 30 seconds before turning it on again.

   IMPORTANT: Do not set a password before installing the operating system.

6. The operating system starts when POST completes.

POST Error Messages

When POST detects an error, it displays an error message on the screen. See Chapter 8 for POST error codes.

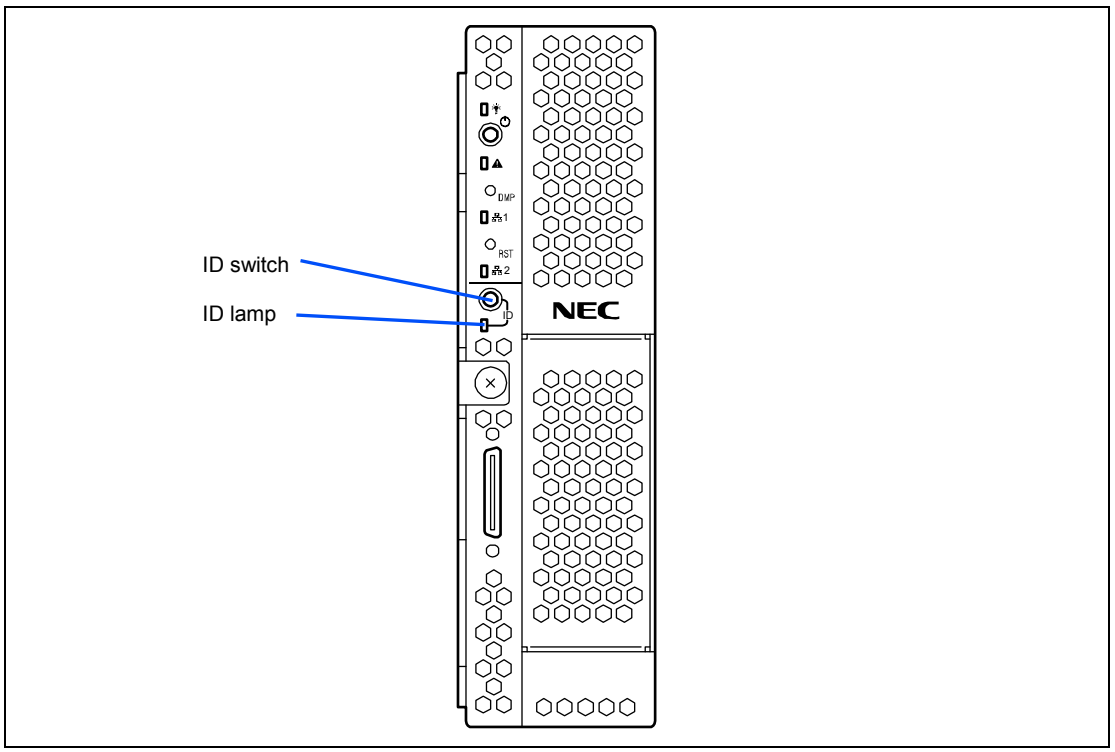
IMPORTANT: Take note of the error messages displayed before consulting with your service representative; they may provide useful information for maintenance.

Device Identification

When more than one CPU blade of the same type is installed, use the ID lamp to identify the CPU blade requiring maintenance.

The ID lamp is located on the CPU blade installed in the Blade Enclosure.

The ID lamp also blinks blue when software commands from the management PC on the network are used. In addition, pressing the ID switch on the CPU blade illuminates the ID lamp.



Chapter 3

Setting Up Your Server

This chapter describes how to set up the server on a step-by-step basis.

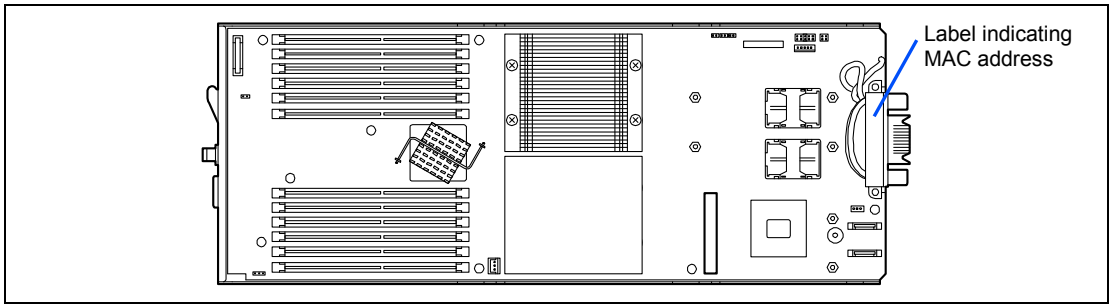
BEFORE INSTALLING CPU BLADE

Be sure to check the MAC addresses before installing a CPU blade in the Blade Enclosure.

Check MAC Address

A MAC address indicates the address specific for the network. It is a 12-digit alphanumeric string starting with "003013." A CPU blade has two MAC addresses. Check the MAC addresses before installing a CPU blade in the Blade Enclosure.

A MAC address is shown in the figure below:



The address of the LAN port depends on the number and letter of the last character of the MAC address.

- When the number/letter of the last character is an even number or A, C, or E:
  The MAC address for LAN port 1 is as described on the label.
  The MAC address for LAN port 2 can be obtained by adding 1 to the MAC address.
- When the number/letter of the last character is an odd number or B, D, or F:
  The MAC address for LAN port 1 can be obtained by adding 1 to the MAC address.
  The MAC address for LAN port 2 can be obtained by adding 2 to the MAC address.

The MAC addresses can be checked by using a Windows or Linux command.

- Windows
  Enter "ipconfig /all" in the MS-DOS prompt or from [Run] in the Start menu to see the indicated physical address part.
- Linux
  Enter "ifconfig" in the prompt to see the indicated "Hwaddr."

Installing DIMM

If your CPU blade is not equipped with memory, install DIMM’s according to Chapter 9.
Two DIMM’s must be populated in a pair.

INSTALLING THE CPU BLADE

Install the CPU blade in a dedicated Blade Enclosure. Refer to the User's Guide of the Blade Enclosure for how to install the CPU blade.

IMPORTANT: The CPU blade is extremely sensitive to static electricity. Make sure to touch the metal frame of the CPU blade to discharge static electricity from your body before handling the CPU blade. Do not touch the pins, leads, or circuitry or place the CPU blade directly on a desk. For static notes, see "Anti-static Measures" in Chapter 9.

MAKING CONNECTIONS

Connect peripheral devices to the CPU blade.

IMPORTANT:

- Contact the maintenance engineer or your service representative for information on configuring an uninterruptible power supply system or auto power controller and the time schedule operation.
- If you are installing the CPU blade in the Blade Enclosure (SIGMABLADE), follow the instructions described in the User's Guide of the Blade Enclosure.

⚠ WARNING

Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-6 for details.

- Do not hold the power plug with wet hands.
- Do not connect earth lines to any gas tubes.

⚠ CAUTION

Observe the following instructions to use the server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-6 for details.

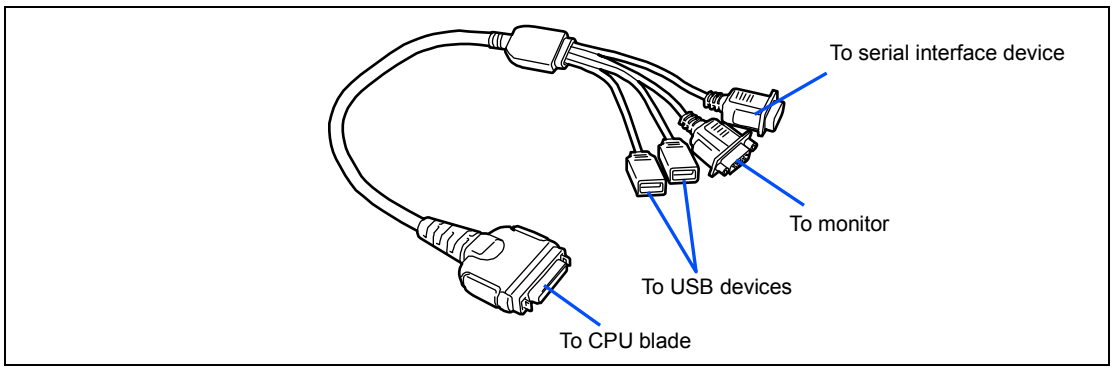
- Do not plug the power cord into an improper power source.
- Do not connect the power cord to an outlet that has an illegal number of connections.
- Insert the power plug into the outlet as far as it goes.
- Use the authorized power cord only.
- Do not connect or disconnect any interface cable with the power cord of the server plugged into a power source.
- Do not use any unauthorized interface cable.

During normal operation, interface cables do not need to be connected to a CPU blade. Cables should be connected to the USB, serial, and/or VGA ports on the CPU blade in the following cases:

- Installing an operating system when the CPU blade is installed in the Blade Enclosure (SIGMABLADE-H).
- Maintenance.
- Updating BIOS and firmware.

The K410-150(00) SUV cable is a standard accessory for the Blade Enclosure (SIGMABLADE).

The K410-150(00) SUV cable has USB, serial interface, and monitor connection connectors. Connect a device to each of the cable's connectors as necessary.



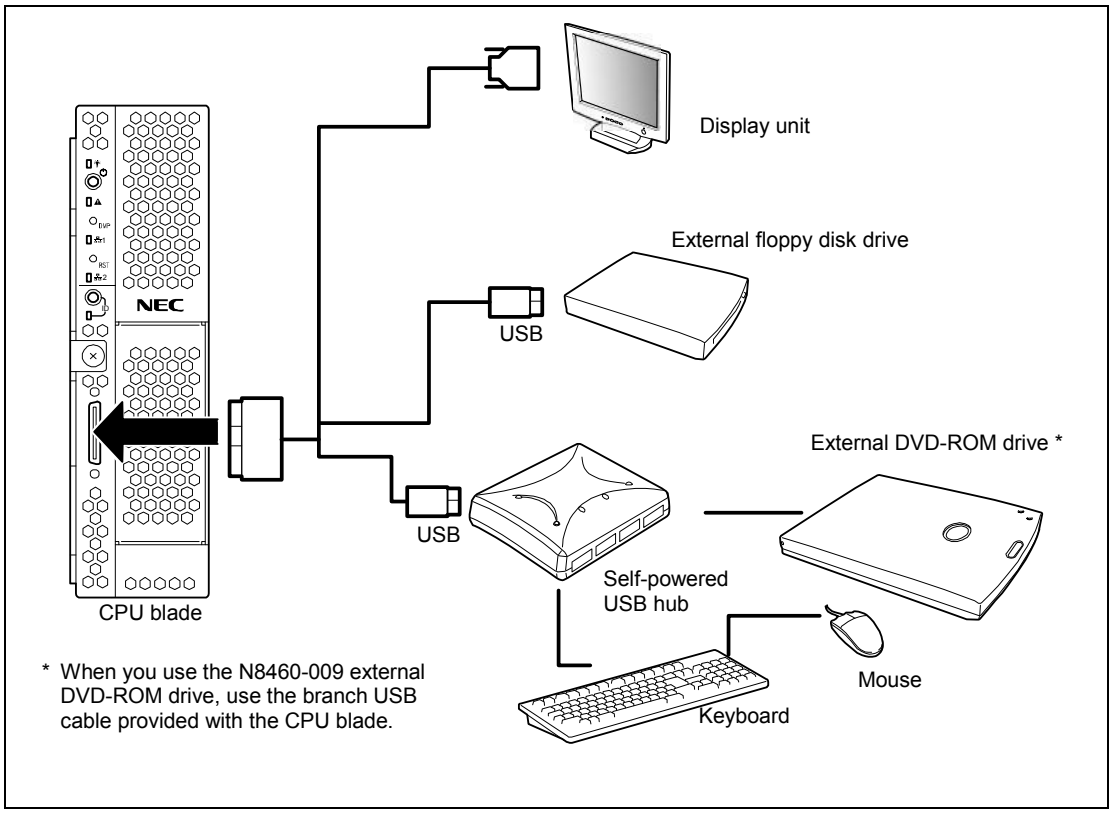
IMPORTANT:

- To connect a peripheral or interface cable provided by a vendor other than NEC to the CPU blade, make sure that the device is compatible with the CPU blade. Some third party devices are not compatible with the CPU blade.
- The serial port connector cannot be directly connected to a leased line.
- Do not connect/disconnect the SUV cable or add/remove a USB device until the operating system starts up.
  To connect/disconnect the SUV cable or add/remove a USB device after operating system startup, follow the operating system procedure.
  If a device with a serial interface is connected, power off the CPU blade and device. Then, remove the power cord from the device before connecting/disconnecting the SUV or serial cable. Failure to do so may cause the device to malfunction.
- If the CPU blade is installed in the Blade Enclosure (SIGMABLADE-H) and you need to install an operating system, use the SUV cable. See the next page for connecting the cable.

USB Connection by K410-150(00) SUV Cable

Connect the floppy disk drive, DVD-ROM drive, keyboard, and mouse according to the figure shown below.

A USB hub should be self-powered if it is used. Use N8460-005.



Network

The CPU blade is connected to the network via the Blade Enclosure. Refer to the User's Guide of the Blade Enclosure for details.

Chapter 4

Configuring Your Server

This chapter describes Basic Input Output System (BIOS) configuration.

When you install the Bade Server for the first time or install/remove optional devices, read this chapter to understand the correct setup procedures.

SYSTEM BIOS ~ SETUP ~

The SETUP utility is provided to configure the basic hardware settings of the CPU blade. This utility is pre-installed in the flash memory of the CPU blade.

The CPU blade is pre-configured with the optimal parameters for system performance. Therefore, you do not need to use the SETUP utility except in the cases described below.

IMPORTANT:

- The SETUP utility is intended for system administrator use only.
- The SETUP utility allows you to set a password. The CPU blade is provided with two levels of password: Supervisor and User. With the Supervisor password, you can view and change all system parameters of the SETUP utility. With the User password, the system parameters you can view and change are limited.
- Do not set a password before installing the operating system.
- The CPU blade contains the latest version of the SETUP utility. The menus and descriptions that appear in your SETUP utility may differ from the descriptions in this manual. If you find anything unclear, see the online help or contact your sales representative.

Starting SETUP Utility

Powering on the CPU blade starts POST (Power On Self-Test) and displays its check results. If the NEC logo is displayed, press **Esc**.

After a while, the following message appears at the bottom left of the screen:

```
Press <F2> to enter SETUP
```

Press **F2** to start the SETUP utility and display its Main menu.

If you have previously set a password with the SETUP utility, the password entry screen appears. Enter the password.

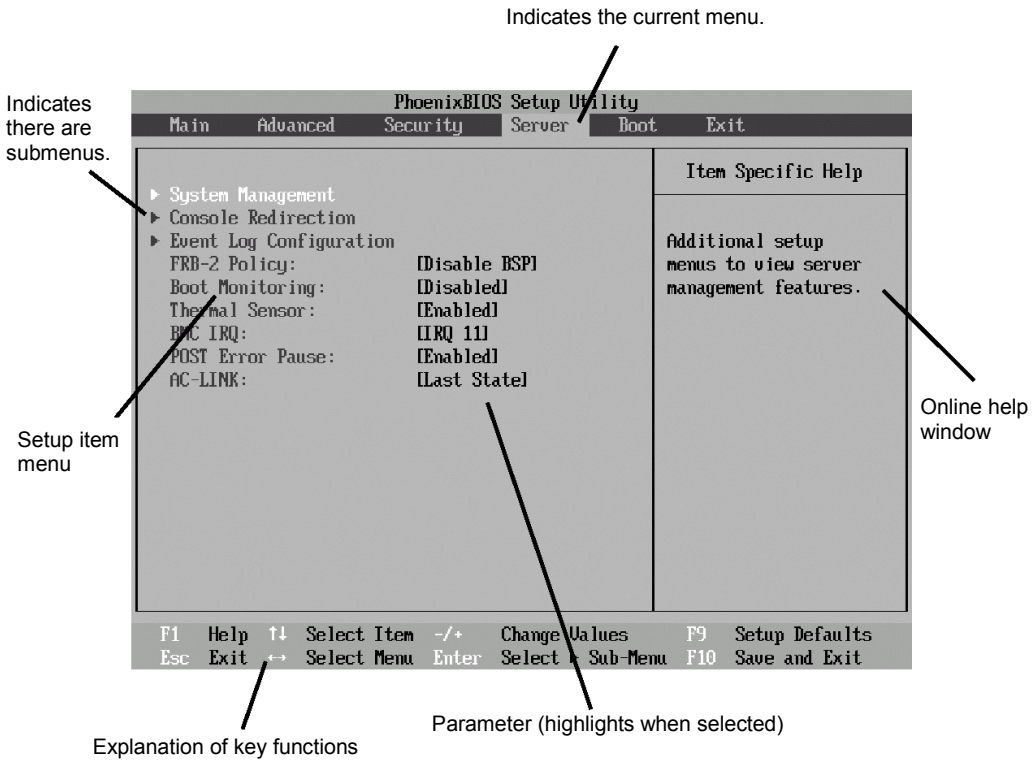
```
Enter password:[                ]
```

Up to three password entries will be accepted. Three incorrect password entries disable the system. In this case, turn off the power and wait about 30 seconds before turning it on again.

NOTE: The CPU blade is provided with two levels of password: Supervisor and User. With the Supervisor password, you can view and change all system parameters. With the User password, the system parameters you can view and change are limited.

Description of On-Screen Items and Key Usage

Use the following keyboard keys to navigate the SETUP utility (the key functions are also listed at the bottom of the screen).


Indicates the current menu.
Indicates there are submenus.
PhoenixBIOS Setup Utility
Main Advanced Security Server Boot Exit
Item Specific Help
System Management
Console Redirection
Event Log Configuration
FRB-2 Policy: [Disable BSP]
Boot Monitoring: [Disabled]
Thermal Sensor: [Enabled]
BMC IRQ: [IRQ 11]
POST Error Pause: [Enabled]
AC-LINK: [Last State]
Additional setup menus to view server management features.
Setup item menu
Online help window
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit
Explanation of key functions
Parameter (highlights when selected)

Cursor (↑, ↓):	Selects an item on the screen. The highlighted item is currently selected.
Cursor (←, →):	Selects the Main, Advanced, Security, Server, Boot, or Exit menu.
– and **+**:	Changes the value (parameter) of the selected item. When a submenu option (an option preceded by "►") is selected, these keys are disabled.
Enter:	Press **Enter** to select the parameters.
Esc:	Displays the previous screen.
F1:	Press **F1** when you need help on SETUP operations. The help screen for SETUP operations appears. Press **Esc** to return to the previous screen.
F9:	Sets the parameter of the currently displayed item back to the factory set parameter.
F10:	Save and exit the SETUP utility.

Configuration Examples

The following describes examples of the configuration settings required to use software-link features or for system operations.

Date and Time

To change system date or time

Select [Main] – [System Time] and [System Date].

Set the correct date and time before using the system.

Link with Management Software

To control the power supply of the CPU blade with NEC ESMPRO Manager via the network

Select [Advanced] – [Advanced Chipset Control] – [Wake On LAN/PME] – [Enabled].

Boot

To change the boot order of devices connected to the CPU blade

Select [Boot] and specify the boot order.

To display POST check results

Select [Advanced] – [Boot-time Diagnostic Screen] – [Enabled].

You can also press **Esc** while the NEC logo is on the screen to display POST check results.

To use the remote wake-up feature

- Via Modem:

  [Advanced] – [Advanced Chipset Control] – [Wake on Ring] – [Enabled]

- Via LAN:

  [Advanced] – [Advanced Chipset Control] – [Wake on LAN/PME] – [Enabled]

- Via optional card:

  [Advanced] – [Advanced Chipset Control] – [Wake on LAN/PME] – [Enabled]

- Via RTC alarm:

  [Advanced] – [Advanced Chipset Control] – [Wake on RTC Alarm] – [Enabled]

To control from the HW console

Select [Server] – [Console Redirection] and configure each item.

Memory

To pause POST if a memory error is detected

Select [Advanced] – [Memory/Processor Error] – [Halt].

To check the installed memory (DIMM) status

Select [Advanced] – [Memory Configuration] – [DIMM Group #1 - #2 Status] and check the status indications.

To clear the memory (DIMM) error information

Select [Advanced] – [Memory Configuration] – [Memory Retest] – [Yes] and reboot the system.

CPU

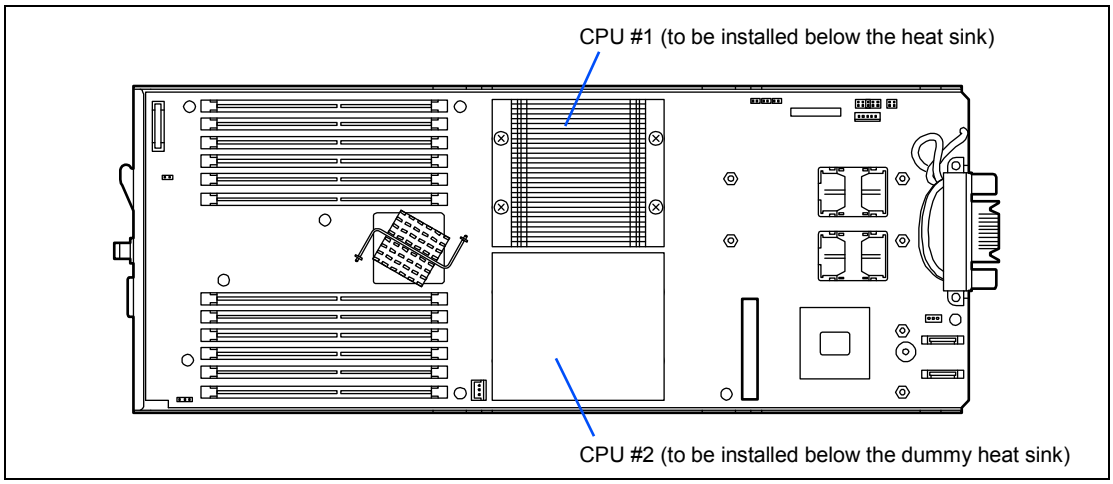
To pause POST if the system detects a CPU error

Select [Advanced] – [Memory/Processor Error] – [Halt].

To check the installed CPU status

Select [Main] – [Processor Settings] and check the status indications.

The on-screen CPU numbers and socket locations on the motherboard are associated as shown in the figure below:



To clear the CPU error information

Select [Main] – [Processor Settings] – [Processor Retest] – [Yes] and reboot the system.

Keyboard

To set Numlock and key repeat

Select [Advanced] – [NumLock] – [On].

Security

To set BIOS passwords

Select [Security] – [Set Supervisor Password] and enter a password.

Set the Supervisor password first, and then the User password.

To enable/disable the POWER switch

Select [Security] – [Power Switch Inhibit] – [Disabled].

Select [Security] – [Power Switch Inhibit] – [Enabled].

To set this item, the Supervisor and User passwords must be set.

IMPORTANT: Even if [Power Switch Inhibit] is set to [Enabled], the forced shutdown procedure is still available.

External Devices

To set up external devices

Select [Advanced] – [Peripheral Configuration] and set up each device.

Internal Devices

To set up internal PCI devices of the CPU blade

Select [Advanced] – [PCI Configuration] and set up each device.

To clear the hardware configuration data (after installing/removing internal devices)

Select [Advanced] – [Reset Configuration Data] – [Yes].

Saving the Configuration Data

To save the BIOS configuration data

Select [Exit] – [Exit Saving Changes] or [Save Changes].

To discard changes to the BIOS configuration data

Select [Exit] – [Exit Discarding Changes] or [Discard Changes].

To load the default BIOS configuration data (may differ from factory-set values)

Select [Exit] – [Load Setup Defaults].

To save the current settings as a user-defined configuration

Select [Exit] – [Save Custom Defaults].

To load the user-defined configuration data

Select [Exit] – [Load Custom Defaults].

Menu and Parameter Descriptions

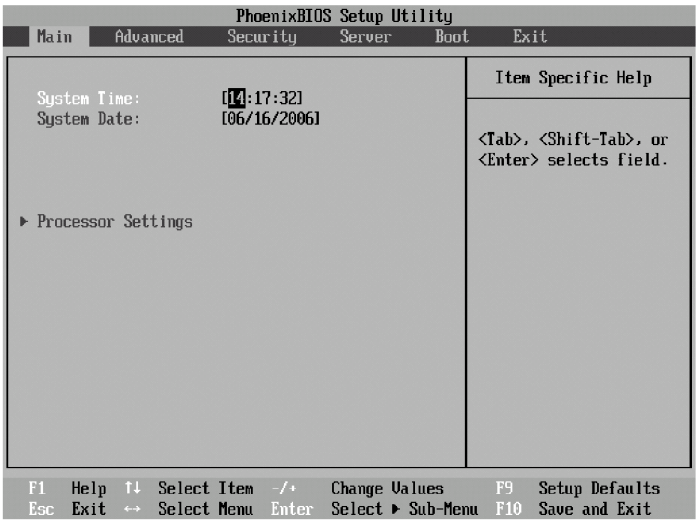
The SETUP utility has the following six menus:

- Main
- Advanced
- Security
- Server
- Boot
- Exit

To set specific functions, select a submenu from the above menus. The following describes the available options and their descriptions for each menu, as well as the factory-set values.

Main

Start the SETUP utility to display the Main menu.



Available options in the Main menu are listed below:

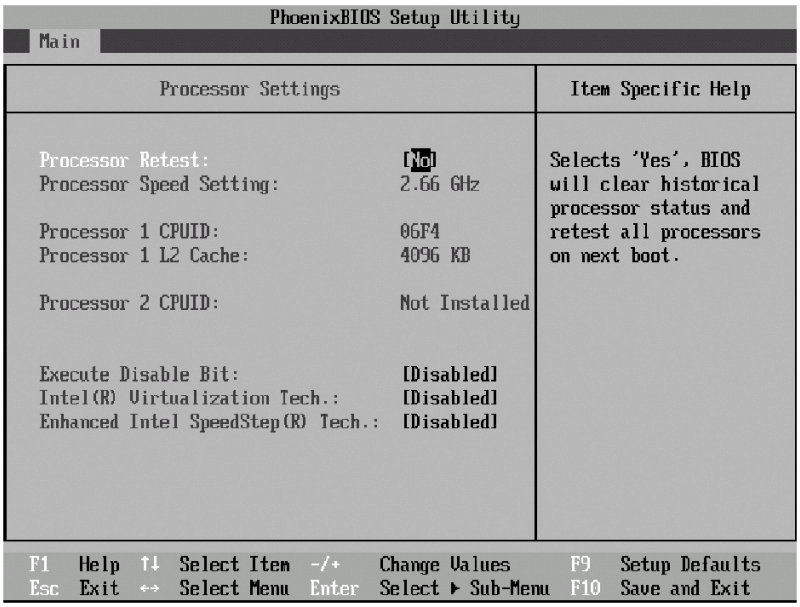
Option	Parameter	Description	Your Setting
System Time	HH:MM:SS	Specify the current time.	
System Date	MM/DD/YYYY	Specify the current date.	

[ ]: Factory-set

IMPORTANT: If the system clock fails to maintain sychronization despite being adjusted, contact your sales agent.

Processor Settings

Select "Processor Settings" on the Main menu to display the following screen :


PhoenixBIOS Setup Utility
Main
Processor Settings
Item Specific Help
Processor Retest: [No]
Processor Speed Setting: 2.66 GHz
Processor 1 CPUID: 06F4
Processor 1 L2 Cache: 4096 KB
Processor 2 CPUID: Not Installed
Execute Disable Bit: [Disabled]
Intel(R) Virtualization Tech.: [Disabled]
Enhanced Intel SpeedStep(R) Tech.: [Disabled]
Selects 'Yes', BIOS will clear historical processor status and retest all processors on next boot.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

See the table below for the options and their descriptions:

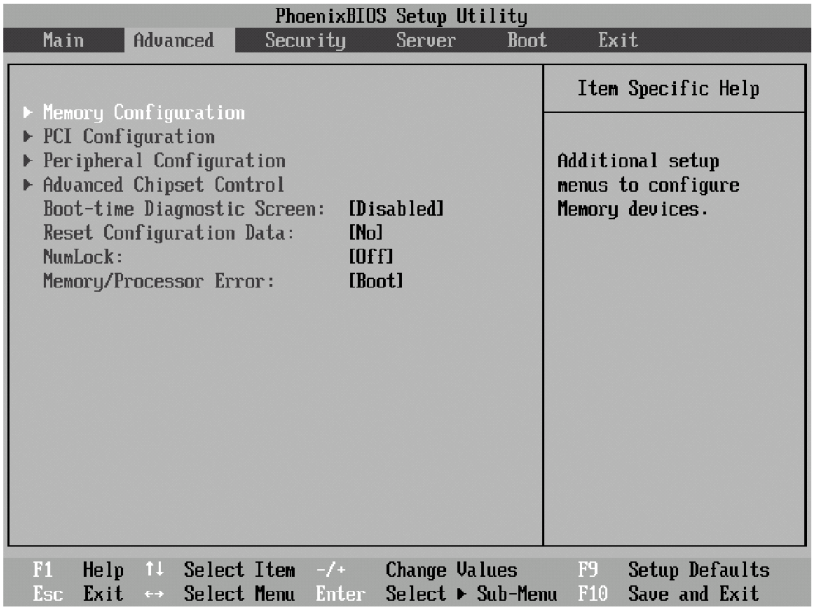
Option	Parameter	Description	Your Setting
Processor Retest	[No] Yes	Clears the error information on the CPU.	
Processor Speed Setting	–	Indicates the frequency of the CPU.	
Processor 1 CPUID	Numeral Disabled Not installed	A numeral indicates the ID of processor 1. "Disabled" indicates that the processor is defective. "Not Installed" indicates that the processor is not installed.	
Processor 1 L2 Cache	–	Indicates the cache size of processor 1.	
Processor 2 CPUID	Numeral Disabled Not installed	A numeral indicates the ID of processor 2. "Disabled" indicates that the processor is defective. "Not Installed" indicates that the processor is not installed.	
Processor 2 L2 Cache	–	Indicates the cache size of processor 2.	
Execute Disable Bit	Disabled [Enabled]	Specify whether the HW DEP feature is enabled or disabled.	
Intel(R) Virtualization Tech.	[Disabled] Enabled	Specify whether the virtualization technology of the Intel(R) processor is enabled or disabled.	
Enhanced Intel SpeedStep(R) Tech.	[Disabled] Enabled	Specify whether the Enhanced Intel SpeedStep(R) Technology feature is enabled or disabled. If the CPU does not support this feature, this option is not available.	

[ ]: Factory-set

Advanced

Move the cursor onto "Advanced" to display the Advanced menu.

Selecting a menu item preceded by the symbol "►" and pressing **Enter** displays the submenu.



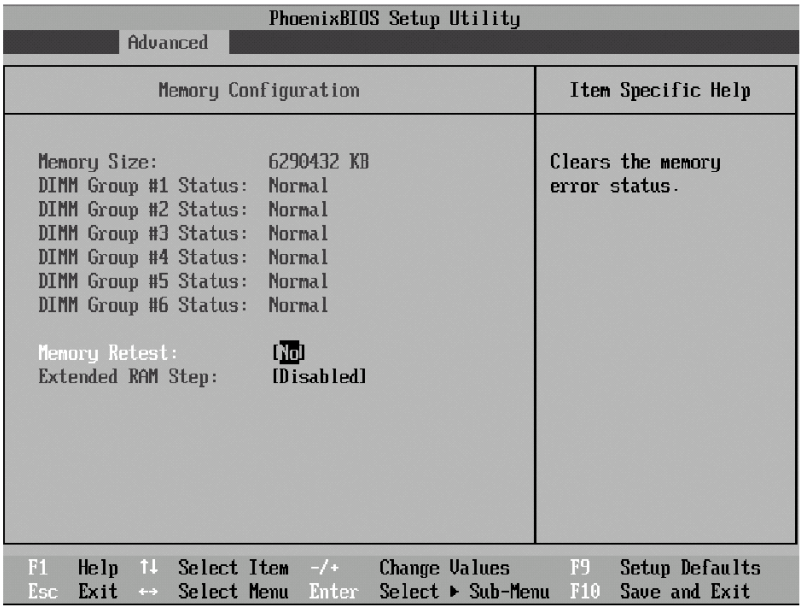
See the table below for the options and their descriptions:

Option	Parameter	Description	Your Setting
Boot-time Diagnostic Screen	[Disabled] Enabled	Specify whether the self-diagnosis (POST) screen is displayed or not at boot. If this item is set to "Disabled," the "NEC" logo appears during POST (pressing **Esc** displays the POST screen).	
Reset Configuration Data	[No] Yes	Set this item to "Yes" to clear the configuration data (system information stored by POST). The parameter is changed to "No" after the system is booted.	
NumLock	On [Off]	Specify whether the NumLock feature is enabled or disabled.	
Memory/Processor Error	[Boot] Halt	The boot up operation pauses at the end of POST if a memory or CPU error occurs.	

[ ]: Factory-set

Memory Configuration

Select "Memory Configuration" on the Advanced menu to display the following screen:


PhoenixBIOS Setup Utility
Advanced
Memory Configuration
Item Specific Help
Memory Size: 6290432 KB
DIMM Group #1 Status: Normal
DIMM Group #2 Status: Normal
DIMM Group #3 Status: Normal
DIMM Group #4 Status: Normal
DIMM Group #5 Status: Normal
DIMM Group #6 Status: Normal
Memory Retest: [No]
Extended RAM Step: [Disabled]
Clears the memory error status.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

See the table below for the options and their descriptions:

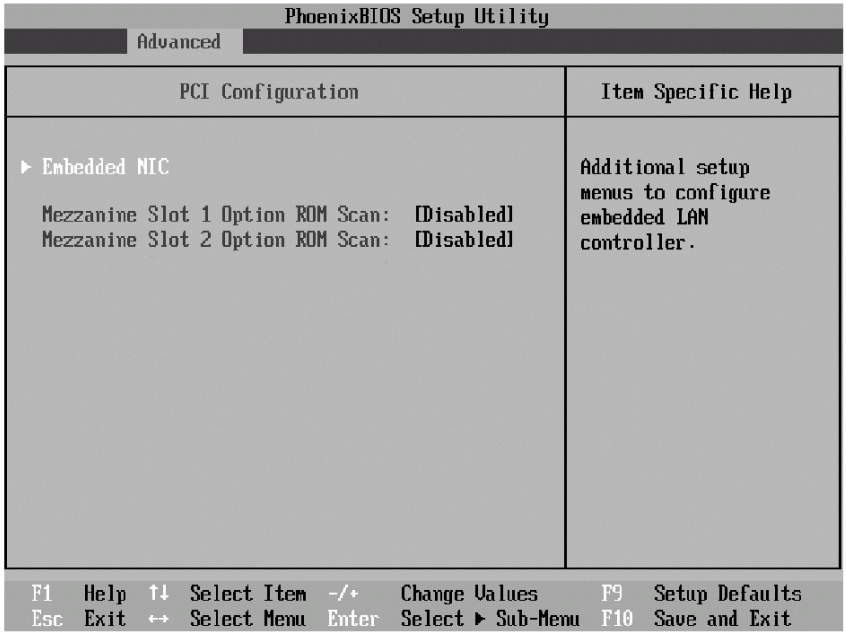
Option	Parameter	Description	Your Setting
Memory Size	–	Indicates the total capacity of installed memory.	
DIMM Group #1 - #6 Status	Normal Disabled Not installed	Indicates the current memory status. "Normal" indicates that the memory is operating normally. "Disabled" indicates that one or more memory devices are defective.	
Memory Retest	[No] Yes	Clears the error information on memory.	
Extended RAM Step	1MB 1KB Every Location [Disabled]	"1MB" indicates that the memory test is done in units of 1MB. "1KB" indicates that the memory test is done in units of 1KB. "Every-location" indicates that every memory device is tested. "Disabled" indicates that only memory initialization is done.	

[ ]: Factory-set

PCI Configuration

Select "PCI Configuration" on the Advanced menu to display the following screen.

Selecting a menu item preceded by the symbol "►" and pressing **Enter** displays the submenu.


PhoenixBIOS Setup Utility
Advanced
PCI Configuration
Item Specific Help
▶ Embedded NIC
Mezzanine Slot 1 Option ROM Scan: [Disabled]
Mezzanine Slot 2 Option ROM Scan: [Disabled]
Additional setup menus to configure embedded LAN controller.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Option	Parameter	Description	Your Setting
Mezzanine Slot 1-2 Option ROM Scan	Enabled [Disabled]	Specify whether the BIOS of the mezzanine card is enabled or disabled.	

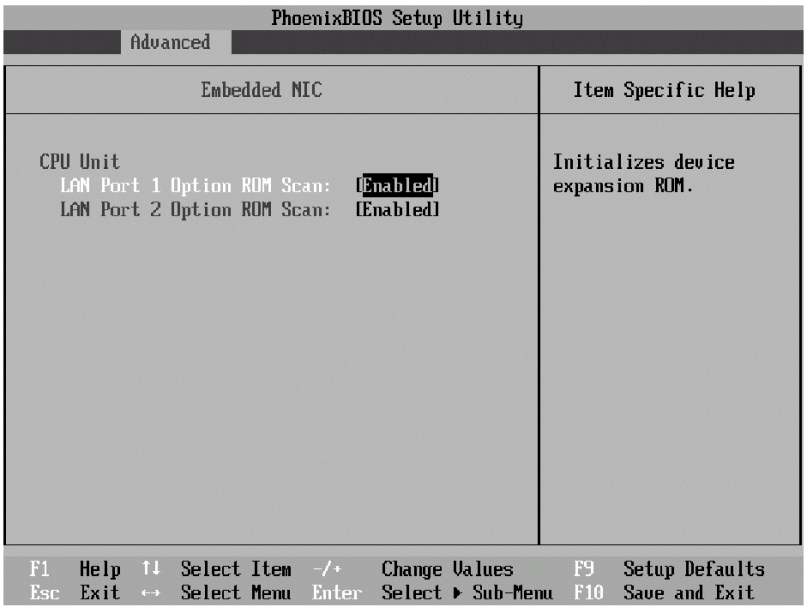
[ ]: Factory-set

– Embedded NIC

See Page 4-14.

Embedded NIC

Select "Embedded NIC" on the PCI Configuration submenu to display the following screen:

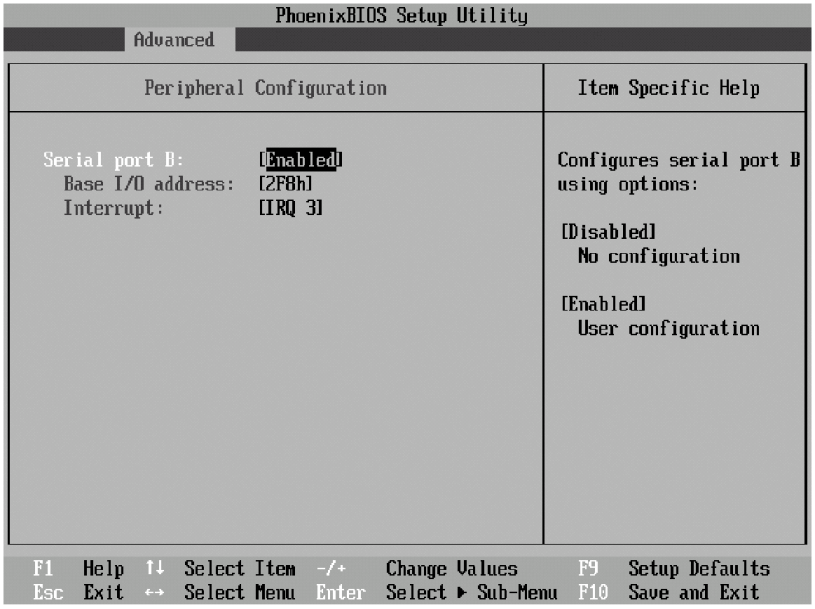

PhoenixBIOS Setup Utility
Advanced
Embedded NIC
Item Specific Help
CPU Unit
LAN Port 1 Option ROM Scan: [Enabled]
LAN Port 2 Option ROM Scan: [Enabled]
Initializes device expansion ROM.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Option	Parameter	Description	Your Setting
LAN Port 1 - 2 Option ROM Scan	[Enabled] Disabled	Specify whether the BIOS of the on-board LAN controller is enabled or disabled.	

[ ]: Factory-set

Peripheral Configuration

Select "Peripheral Configuration" on the Advanced menu to display the following screen:


PhoenixBIOS Setup Utility
Advanced
Peripheral Configuration
Item Specific Help
Serial port B: [Enabled]
Base I/O address: [2F8h]
Interrupt: [IRQ 3]
Configures serial port B using options:
[Disabled]
No configuration
[Enabled]
User configuration
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

See the table below for the options and their descriptions.

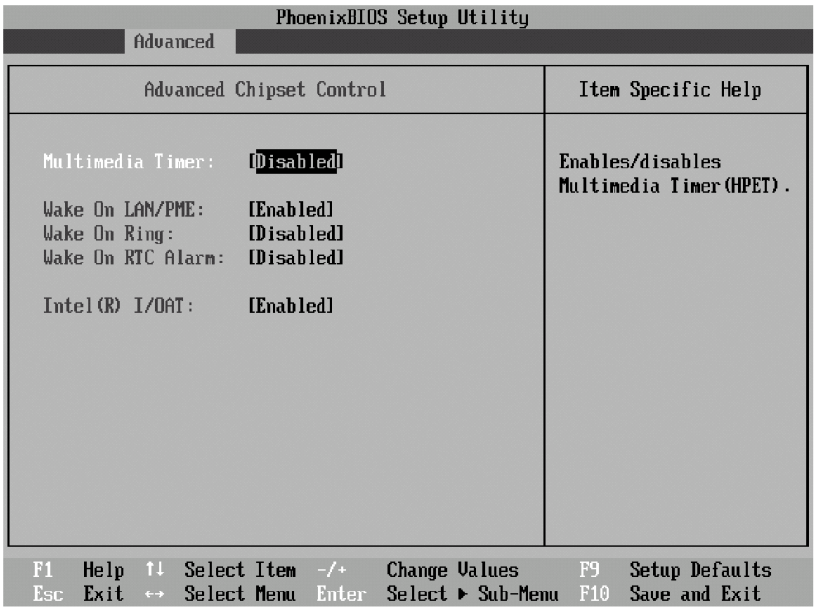
> **IMPORTANT:** Make sure to avoid any conflicts in the interrupt requests or the base I/O addresses. If an assigned value is already used by another resource, it appears in yellow. A yellow value must be reassigned.

Option	Parameter	Description	Your Setting
Serial Port B	Disabled [Enabled]	Specify whether serial port B is enabled or disabled.	
Base I/O Address	3F8h [2F8h] 3E8h 2E8h	Specify the base I/O address for serial port B.	
Interrupt	[IRQ 3] IRQ 4	Specify the interrupt for serial port B.	

[ ]: Factory-set

Advanced Chipset Control

Select "Advanced Chipset Control" on the Advanced menu to display the following screen:


PhoenixBIOS Setup Utility
Advanced
Advanced Chipset Control
Item Specific Help
Multimedia Timer: [Disabled]
Wake On LAN/PME: [Enabled]
Wake On Ring: [Disabled]
Wake On RTC Alarm: [Disabled]
Intel(R) I/OAT: [Enabled]
Enables/disables Multimedia Timer(HPET).
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

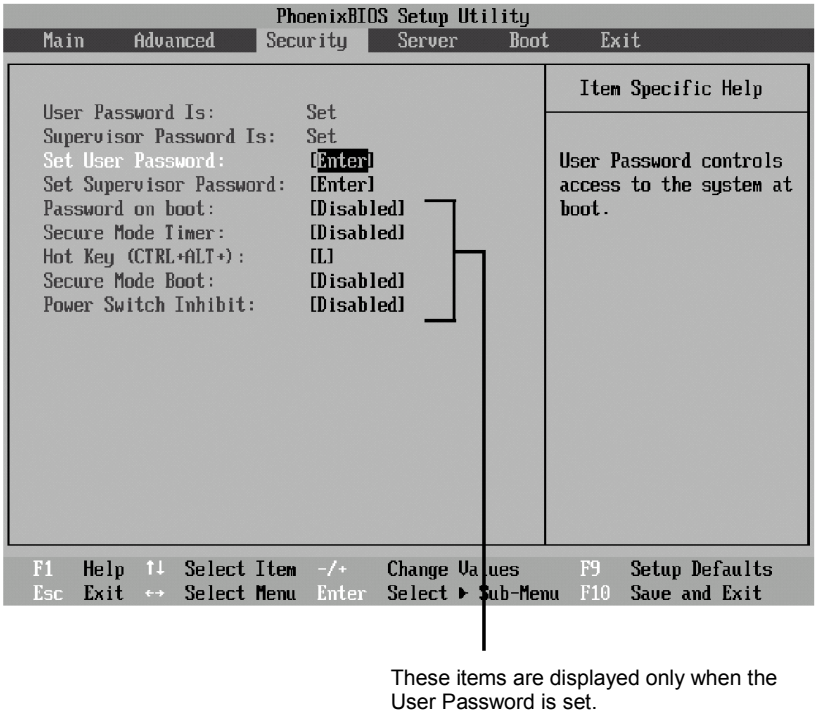
See the table below for the options and their descriptions:

Option	Parameter	Description	Your Setting
Multimedia Timer	[Disabled] Enabled	Specify whether the multimedia timer is enabled or disabled.	
Wake On LAN/PME	Disabled [Enabled]	Specify whether the remote power-on feature through a device connected to the standard network card or expansion slot card is enabled or disabled. To use the Wake On LAN feature, set the link speed and duplex to [Auto].	
Wake On Ring	[Disabled] Enabled	Specify whether the remote power-on feature through a serial port (modem) is enabled or disabled.	
Wake On RTC Alarm	[Disabled] Enabled	Specify whether the remote power-on feature using the RTC alarm is enabled or disabled.	
Intel(R) I/OAT	Disabled [Enabled]	Specify whether the Intel(R) I/O acceleration technology is enabled or disabled.	

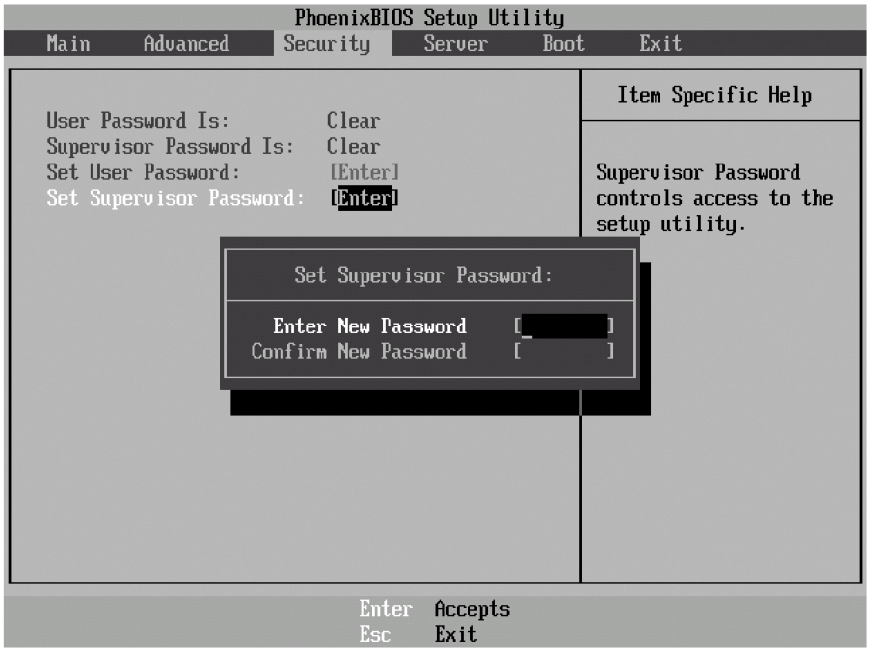
[ ]: Factory-set

Security

Move the cursor onto "Security" to display the Security menu.


PhoenixBIOS Setup Utility
Main Advanced Security Server Boot Exit
Item Specific Help
User Password Is: Set
Supervisor Password Is: Set
Set User Password: [Enter]
Set Supervisor Password: [Enter]
Password on boot: [Disabled]
Secure Mode Timer: [Disabled]
Hot Key (CTRL+ALT+): [L]
Secure Mode Boot: [Disabled]
Power Switch Inhibit: [Disabled]
User Password controls access to the system at boot.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit
These items are displayed only when the User Password is set.

Select "Set Supervisor Password" or "Set User Password" and press **Enter** to display the following dialog box. Note that "Set User Password" is not available if the Supervisor password is not set.


PhoenixBIOS Setup Utility
Main Advanced Security Server Boot Exit
User Password Is: Clear
Supervisor Password Is: Clear
Set User Password: [Enter]
Set Supervisor Password: [Enter]
Item Specific Help
Supervisor Password controls access to the setup utility.
Set Supervisor Password:
Enter New Password [ ]
Confirm New Password [ ]
Enter Accepts
Esc Exit

Enter a password of up to seven alphanumeric characters and symbols in this dialog box.

IMPORTANT:

- "Set User Password" is not available if the Supervisor password is not set.
- Do not set a password before installing the operating system.
- If you have forgotten your password, contact your service representative.

See the table below for the options and their descriptions:

Option	Parameter	Description	Your Setting
Set User Password	Up to 7 alphanumeric characters	Press **Enter** to display the User password entry screen. With a User password, the available SETUP menus are restricted. This option is available only if the Supervisor password is set.	
Set Supervisor Password	Up to 7 alphanumeric characters	Press **Enter** to display the Supervisor password entry screen. With the Supervisor password, all SETUP menus are available. This option is available only when you log into the SETUP utility with the Supervisor password.	
Password on boot	[Disabled] Enabled	Specify whether to request password entry on boot. User password setup is required beforehand. When the supervisor password is specified and this option is disabled, the BIOS assumes that a boot attempt is made by a user. It gives priority to "Secure Mode Boot" when "Secure Mode Boot" and "Password on boot" are both enabled.	
Secure Mode Timer	[Disabled] 1 min 2 min 5 min 10 min 20 min 60 min 120 min	Specify the idle period for the system to enter Secure Mode. If this item is set to [Disabled], the timer is unavailable.	
Hot Key (CTRL+ALT+)	[L] Z	Specify the key to enter Secure Mode. Press the selected key while pressing **Ctrl** and **Alt** to enter Secure Mode.	
Secure Mode Boot	[Disabled] Enabled	Specify whether the system starts in Secure Mode or not.	
Power Switch Inhibit	[Disabled] Enabled	Specify whether the POWER switch of the CPU blade is enabled or disabled. If Enabled, the POWER switch cannot be used to power off the CPU blade. The forced shutdown procedure (pressing the POWER switch for at least 4 seconds) is still available.	

[ ]: Factory-set

IMPORTANT: Secure Mode is used to restrict the access of a user who has no user password.

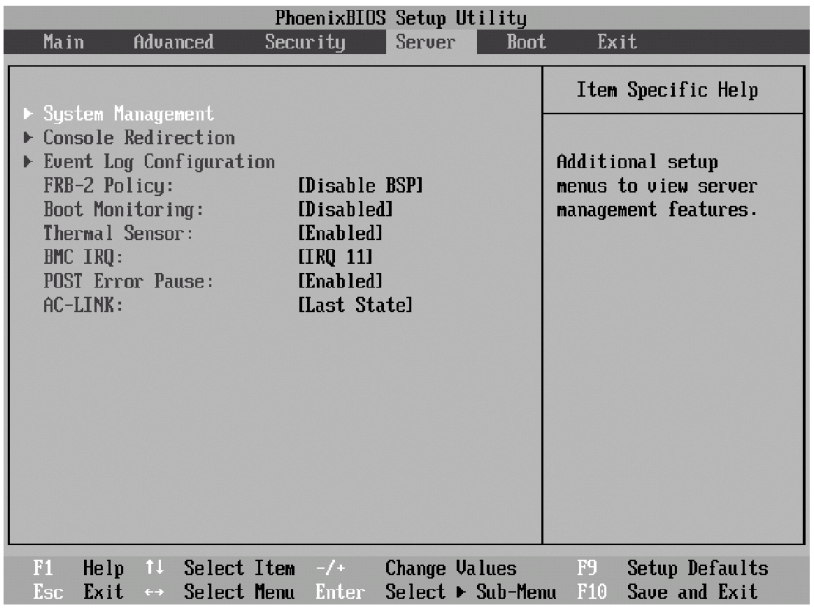
In Secure Mode, the POWER switch, DUMP switch, keyboard, and mouse are disabled, and the ScrollLock, CapsLock, and NumLock lamps on the keyboard flashsequentially.

To exit Secure Mode, enter the user password.

Server

Move the cursor onto "Server" to display the server menu.

Selecting a menu item preceded by the symbol "►" and pressing **Enter** displays the submenu.


PhoenixBIOS Setup Utility
Main Advanced Security Server Boot Exit
Item Specific Help
System Management
Console Redirection
Event Log Configuration
FRB-2 Policy: [Disable BSP]
Boot Monitoring: [Disabled]
Thermal Sensor: [Enabled]
BMC IRQ: [IRQ 11]
POST Error Pause: [Enabled]
AC-LINK: [Last State]
Additional setup menus to view server management features.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

See the table below for the options and their descriptions:

Option	Parameter	Description	Your Setting
FRB-2 Policy	Disable FRB2 Timer [Disable BSP] Do Not Disable BSP Retry 3 Times	Set the policy to be applied to FRB level 2 timer.	
Boot Monitoring	[Disabled] 5 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes 35 minutes 40 minutes 45 minutes 50 minutes 55 minutes 60 minutes	Specify whether the boot monitoring feature is enabled or disabled and the timer value. To use this feature, install NEC ESMPRO Agent. Do not use this feature if the system is booted from the operating system without NEC ESMPRO Agent installed. Set this item to "Disabled" if ARCServe uses the Disaster Recovery Option.	
Thermal Sensor	Disabled [Enabled]	Specify whether the temperature sensor monitoring function is enabled or disabled.	
BMC IRQ	Disabled [IRQ 11]	Specify the IRQ of the BMC.	
Post Error Pause	Disabled [Enabled]	Specify whether POST ishalted if an error occurs.	
AC-LINK	Stay Off [Last State] Power On	Specify the AC-LINK feature. Select the state when the power of the CPU blade is restored. See the table below.	

[ ]: Factory-set

NOTE: Refer to the User's Guide of the Blade Enclosure for more information on the AC-LINK feature.

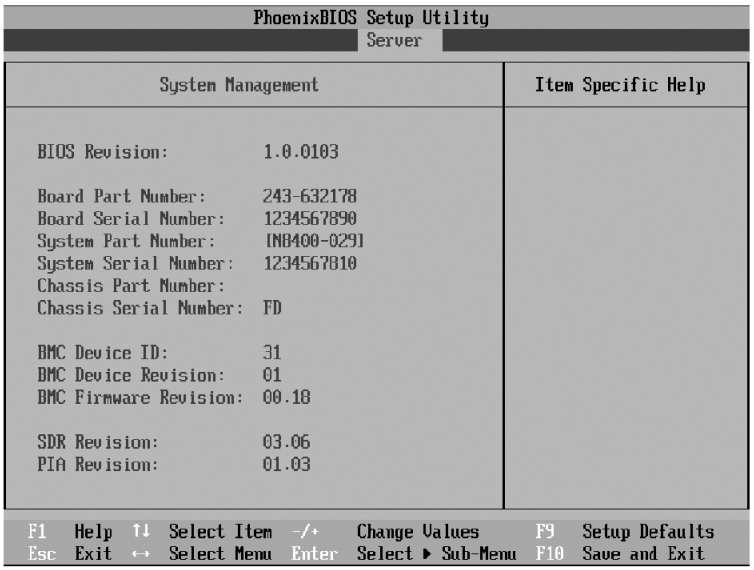
The table below shows the system status when AC power to the server is turned off and then restored:

System status before AC power off	Setting of AC-LINK		
	Stay Off	Last State	Power On
Operating	Off	On	On
Shutdown (DC power off)	Off	Off	On
Forced shutdown*	Off	Off	On

* Press the POWER switch for four seconds or longer. This forcibly turns off the power.

System Management

Select "System Management" on the Server menu to display the following screen:


PhoenixBIOS Setup Utility
Server
System Management
Item Specific Help
BIOS Revision: 1.0.0103
Board Part Number: 243-632178
Board Serial Number: 1234567890
System Part Number: [N8400-029]
System Serial Number: 1234567810
Chassis Part Number:
Chassis Serial Number: FD
BMC Device ID: 31
BMC Device Revision: 01
BMC Firmware Revision: 00.18
SDR Revision: 03.06
PIA Revision: 01.03
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

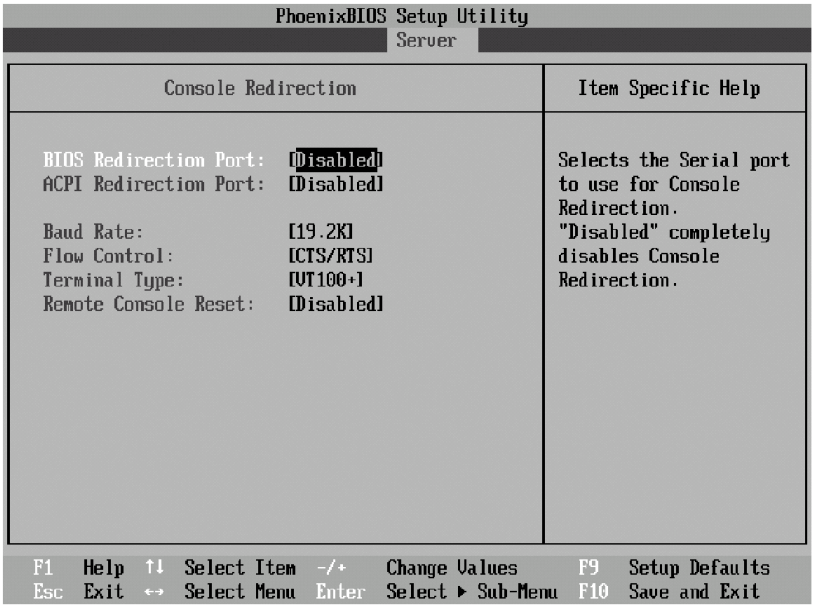
See the table below for the options and their descriptions:

Option	Parameter	Description	Your Setting
BIOS Revision	–	Indicates the version of BIOS.	
Board Part Number	–	Indicates the part number of the motherboard.	
Board Serial Number	–	Indicates the serial number of the motherboard.	
System Part Number	–	Indicates the code of the server.	
System Serial Number	–	Indicates the serial number of the server.	
Chassis Part Number	–	Indicates the part number of the chassis.	
Chassis Serial Number	–	Indicates the serial number of the chassis.	
BMC Device ID	–	Indicates the device ID of BMC (Baseboard Management Controller).	
BMC Device Revision	–	Indicates the revision of BMC.	
BMC Firmware Revision	–	Indicates the firmware revision of BMC.	
SDR Revision	–	Indicates the revision of SDR (Sensor Data Record).	
PIA Revision	–	Indicates the revision of PIA (Platform Information Area).	

[ ]: Factory-set

Console Redirection

Select "Console Redirection" on the Server menu to display the following screen:


PhoenixBIOS Setup Utility
Server
Console Redirection
Item Specific Help
BIOS Redirection Port: [Disabled]
ACPI Redirection Port: [Disabled]
Baud Rate: [19.2K]
Flow Control: [CTS/RTS]
Terminal Type: [VT100+]
Remote Console Reset: [Disabled]
Selects the Serial port to use for Console Redirection.
"Disabled" completely disables Console Redirection.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

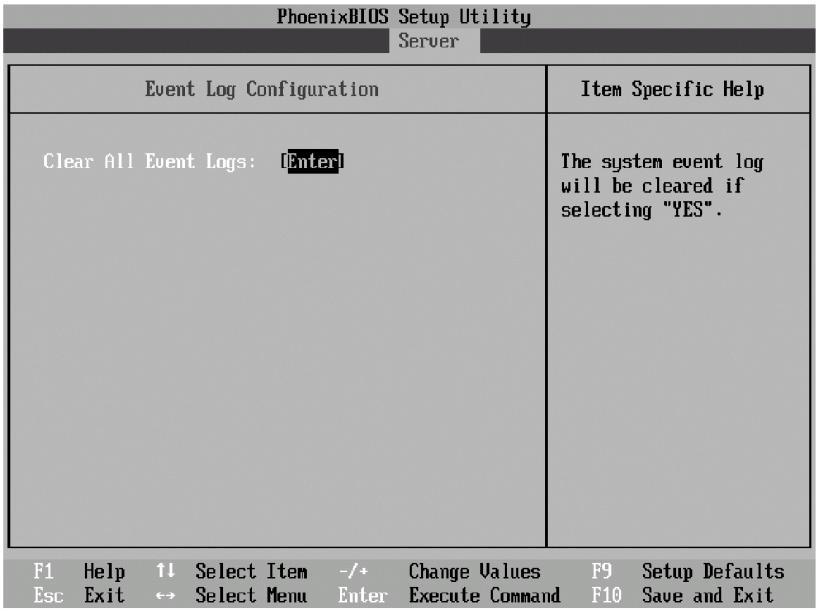
See the table below for the options and their descriptions:

Option	Parameter	Description	Your Setting
BIOS Redirection Port	[Disabled] Serial Port B	Specify the serial port to which a hardware console is connected.	
ACPI Redirection Port	[Disabled] Serial Port B	Specify the serial port to which an ACPI console is connected while the operating system is running.	
Baud Rate	9600 [19.2k] 57.6k 115.2k	Specify the baud rate used for the interface with hardware consoles.	
Flow Control	None XON/XOFF [CTS/RTS] CTS/RTS+CD	Specify the flow control method.	
Terminal Type	PC ANSI [VT100+] VT-UTF8	Specify the type of remote console.	
Remote Console Reset	[Disabled] Enabled	Specify whether reset from the remote console is enabled or disabled.	

[ ]: Factory-set

Event Log Configuration

Select "Event Log Configuration" on the Server menu to display the following screen:


PhoenixBIOS Setup Utility
Server
Event Log Configuration
Item Specific Help
Clear All Event Logs: [Enter]
The system event log will be cleared if selecting "YES".
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Execute Command F10 Save and Exit

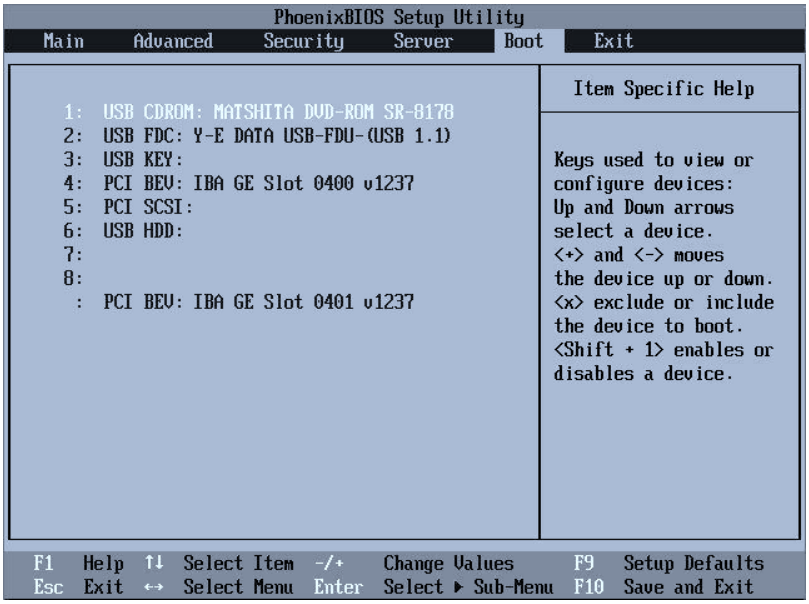
See the table below for the option and its description:

Option	Parameter	Description	Your Setting
Clear All Event Logs	–	Press **Enter** to clear the system event log.	

[ ]: Factory-set

Boot

Move the cursor onto "Boot" to display the Boot menu. The CPU blade searches for boot devices in the order set in this menu.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Server
Boot
Exit
1: USB CDROM: MATSHITA DVD-ROM SR-8178
2: USB FDC: Y-E DATA USB-FDU-(USB 1.1)
3: USB KEY:
4: PCI BEV: IBA GE Slot 0400 v1237
5: PCI SCSI:
6: USB HDD:
7:
8:
: PCI BEV: IBA GE Slot 0401 v1237
Item Specific Help
Keys used to view or configure devices:
Up and Down arrows select a device.
<+> and <-> moves the device up or down.
<x> exclude or include the device to boot.
<Shift + 1> enables or disables a device.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

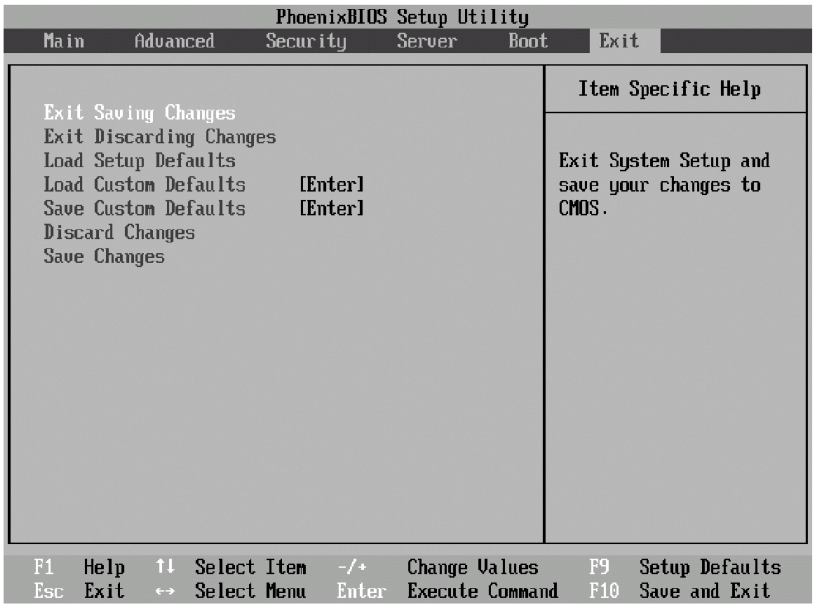
The priority of the boot devices can be changed by using the ↑, ↓, **+**, and **-** keys. Move the cursor to the desired device with the ↑ or ↓ keys and change the priority with the **+** or **-** keys.

The boot device priority is factory-set in the following order:

- USB CDROM (optical drive)
- USB FDC (removable device)
- USB Hard Drive
- IBA GE Slot 0400 v1237 (LAN1)
- IBA GE Slot 0401 v1237 (LAN2)

Exit

Move the cursor onto "Exit" to display the Exit menu.


PhoenixBIOS Setup Utility
Main Advanced Security Server Boot Exit
Item Specific Help
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Load Custom Defaults [Enter]
Save Custom Defaults [Enter]
Discard Changes
Save Changes
Exit System Setup and save your changes to CMOS.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Execute Command F10 Save and Exit

The following describes each option on the Exit menu:

Exit Saving Changes

Select this item to exit SETUP after saving the configuration changes in CMOS (non-volatile memory). A confirmation screen appears.

If you select "Yes," SETUP exits with the configuration changes saved in CMOS (non-volatile memory). Then, the CPU blade automatically reboots.

Exit Discarding Changes

Select this item to exit SETUP without saving the configuration changes in CMOS (non-volatile memory). A confirmation screen appears.

If you select "No," SETUP exits without saving the configuration changes. If you select "Yes," SETUP exits with the configuration changes saved in CMOS. Then, the CPU blade automatically reboots.

Load Setup Defaults

Select this item to return all the values of SETUP to the default values. A confirmation screen appears.

Select "Yes" to return the values to the default values. Select "No" to return to the Exit menu screen.

> **IMPORTANT:** The factory-set values of SETUP may be different from the default values depending on the model of the CPU blade.

Load Custom Defaults

Select this item and press **Enter** to load the stored custom default values.

Save Custom Defaults

Select this item and press **Enter** to save the current values as the custom default values. After saving the values, the Load Custom Defaults menu appears.

Discard Changes

Select this item to return the configuration changes to the previous values. A confirmation screen appears.

Select "Yes" to discard the configuration changes and return to the previous values.

Save Changes

Select this item to save the configuration changes to CMOS (non-volatile memory) without exiting SETUP. A confirmation screen appears.

Select "Yes" to save the configuration changes to CMOS (non-volatile memory).

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Chapter 5

Installing the Operating System with Express Setup

This section describes information on using Express Setup to install and configure the following operating systems:

- Microsoft® Windows® Server 2003 R2 Standard Edition
- Microsoft® Windows® Server 2003 R2 Enterprise Edition

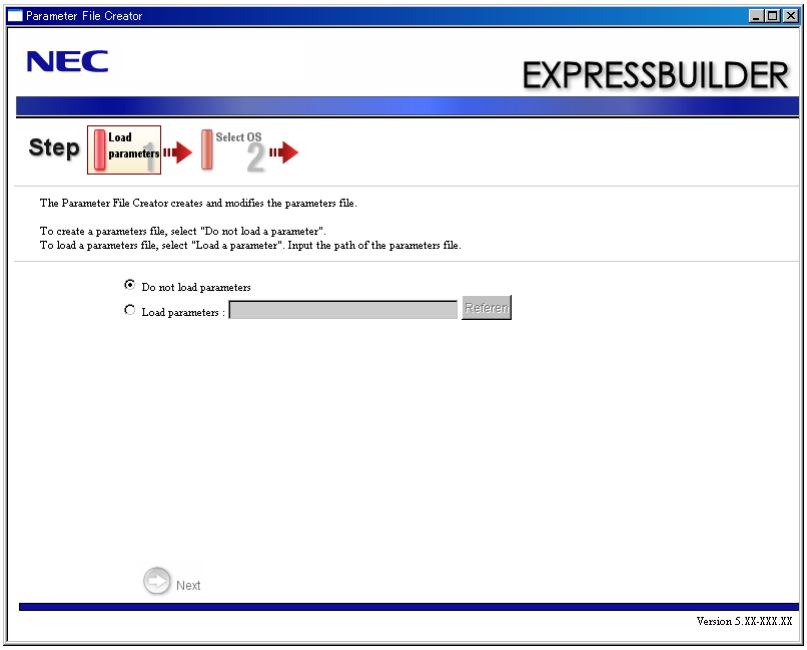
To use the server with operating systems other than ones described in this section, contact your service representative.

> **IMPORTANT:** Before installing the operating system, adjust the system date and time by using the BIOS setup utility. See Chapter 4 for details.

About Express Setup

Express Setup helps you to install the Windows operating system. It automatically configures the RAID array and installs the operating system and management software.

IMPORTANT: Using Express Setup erases all data on the hard disk drive.



You can also use a parameters file with Express Setup that contains parameters for installation. If you want to set up the server as before, use Express Setup with the parameters file you have created.

NOTES:

- If you want to create a parameters file, have a blank floppy disk (MS-DOS 1.44MB format) ready.
- When using a floppy disk, a USB floppy disk drive is required.
- If you want to use the drivers located on the "OEM-Disk for Mass Storage Device" that ships with optional boards, a parameters file is required.
- You can create a parameters file in advance using "Parameter File Creator" included in NEC EXPRESSBUILDER.

Microsoft Windows Server 2003

This section explains how to install Microsoft® Windows® Server 2003 by using Express Setup.

NOTES:

- Express Setup does not support the installation of Windows Server x64 Editions. If you need to install it, see Appendix B.
- If you install Windows Server 2003 without using Express Setup, see Appendix B.

Notes on Windows Installation

This section explains the notes on Windows installation.

Review these notes before starting Express Setup.

About the Windows family

This computer supports the following Windows editions:

- Microsoft® Windows® Server 2003 R2 Standard Edition / Microsoft® Windows® Server 2003 R2 Enterprise Edition (hereafter referred to as Windows Server 2003)

NOTE: Express Setup does not support the installation of Windows Server 2003 x64 Editions. If you need to install it, see Appendix B.

To install another operating system, contact your sales or maintenance service representative.

BIOS Settings

Confirm the BIOS settings described in Chapter 4 before installing Windows Server 2003.

Service Pack Which EXPRESSBUILDER Supports

The EXPRESSBUILDER DVD provided with the server supports the following operating system installation media and Service Packs:

- Windows Server 2003 R2 x64 Edition
  - Operating system installation media (No Service Pack)
- Windows Server 2003 R2
  - Operating system installation media (No Service Pack)

Supported Mass Storage Controllers

The NEC EXPRESSBUILDER DVD provided with the server supports the following mass storage controllers for installation:

> **NOTE:** If you want to install the operating system using a mass storage controller other than the ones listed below, see "Installing with the OEM-FD for Mass storage device" and "Installing Optional Mass Storage Driver" of "Parameter File Creator" in Chapter 6.

- Controllers supporting installation of operating system with Express Setup
  - N8403-018 FibreChannel Controller

> **NOTES:**
>
> - The drivers for the mass storage controllers listed above are stored on the EXPRESSBUILDER DVD.
> - If you use a mass storage controller other than the ones listed above, Express Setup will fail. Refer to the manual provided with the controller for details.

About the Hardware Components

When you use Express Setup to install Windows Server 2003, make sure you observe the following instructions before beginning installation:.

Installing on the Mirrored Volume

If you want to install Windows Server 2003 on a volume that is mirrored using "Disk Management," invalidate the mirror volume and set it to a basic disk before installation. Validate the mirror volume again after installation.

You can create, invalidate, or delete the mirror volume by using "Disk Management" in "Computer Management".

Mounting MO Device

Do not mount an MO device during Windows installation.

About Removable Media

Do not insert removable media, such as DAT, into a mounted device during Windows installation.

Connecting Hard Disk Drive

Only connect the hard disk drive on which you want to install Windows.

If you create multiple logical drives, see "Re-installing the Operating system when multiple logical drive exist" (Appendix B).

Reinstalling to the hard disk drive which has been upgraded to Dynamic Disk

You cannot reinstall Windows Server 2003 on a partition of a hard disk drive that is a dynamic disk.

If you want to keep the current partition, see Appendix B to reinstall the system.

About the System Partition Size

The system partition size can be calculated from the following formula:

Size necessary to install the system	+ Paging File Size + Dump File Size + Application Size
Size necessary to install the system	= 3500MB (Windows Server 2003 R2)
Paging File Size (Recommended)	= Mounted Memory Size * 1.5
Dump File Size	= Mounted Memory Size + 12MB
Application Size	= Required Size

IMPORTANT:

- The above paging file size is necessary for collecting the debug information (memory dump). If a value smaller than the "Recommended" one is set for the initial size of the paging file, the correct debug information (memory dump) may not be collected.
- The maximum paging file size which can be set on one partition is 4095MB. If the above paging file size exceeds 4095MB, specify 4095MB for the paging file size.
- The maximum dump file size for a system with more than 2GB of memory is '2048MB + 12MB.'
- If you need to install other applications, add the hard disk space required for those applications.

For example, if the mounted memory size is 512MB, the partition size calculated by the above formula is as follows:

3500MB + (512MB * 1.5) + (512MB + 12MB) + Application Size
= 4792MB + Application Size

If the recommended partition size of a system as described in the formula above exceeds the capacity of the hard disk drive, the paging file size of the partition can be stored on a separate disk.

1. Calculate the "Size required for installation + Paging file size" with the formula described above.
2. See Chapter 5 to set debugging information (equivalent to the dump file size) to be written to a separate disk.

   If the disk does not have enough free space for the dump file size to be written, install an additional disk.

Installing the Service Pack

When installing Windows Server 2003 R2, it is not necessary to install Service Pack 1.

FLOW OF SETUP

The following flow chart illustrates the setup procedures for Express Setup:

Loading parameters (Step 2)

Skip

Next

Select the operating system (Step 3)

Next

RAID configuration (Step 4)

Next

Windows Confirm Setting / Input
(Steps 5 to 10)

Next

Save parameters (Step 11)

Next

Start Express Setup (Step 12)

Perform

RAID Configuration

Create the OS partition / format

Copying Windows drivers
↓
Copying selected applications

Remove the floppy disk and CD/DVD-ROM from the drives

Insert Windows CD-ROM

Accept Software License Agreement

Install OS Automatically
↓
Log on Automatically

The installation is complete.

: Process that requires user input

: Process that proceeds automatically

INSTALLING WINDOWS SERVER 2003

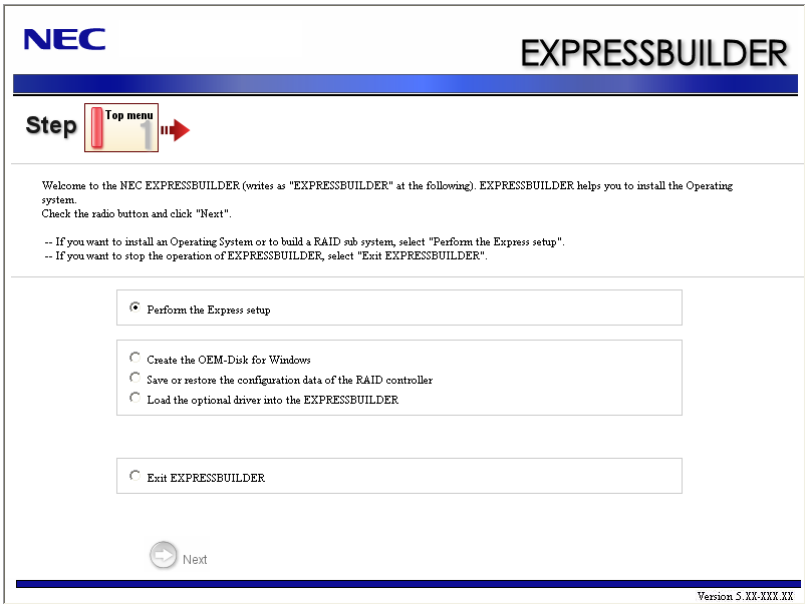
Express Setup proceeds by selecting or inputting parameters in the wizard. You can also save the parameters to a floppy disk as a parameters file.

1. Turn on peripheral devices and then turn on the server.
2. Insert the NEC EXPRESSBUILDER DVD into the optical disc drive of the server.
3. Press the RESET switch or press **Ctrl**, **Alt**, and **Delete** to boot from the NEC EXPRESSBUILDER DVD.

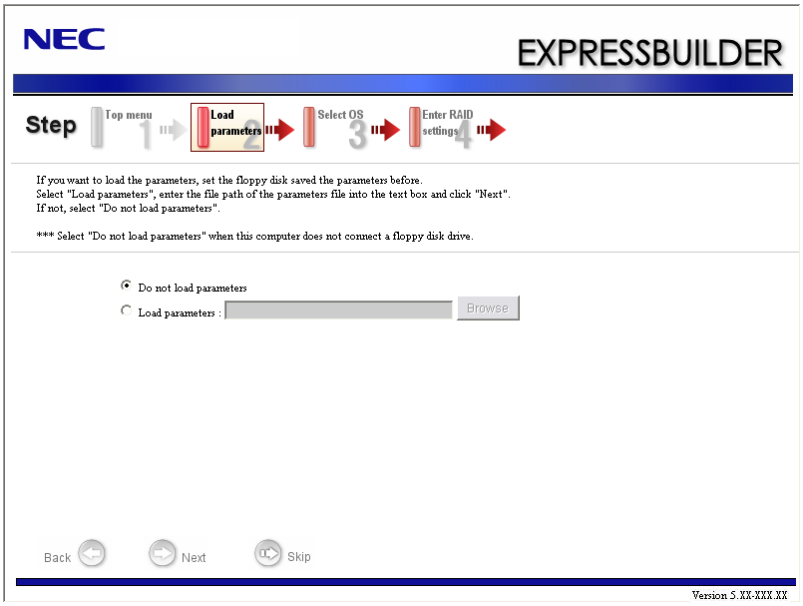
   The system boots from the DVD-ROM and NEC EXPRESSBUILDER starts.

   Select "OS installation *** default ***" from the boot selection menu. If you do not press any key, "OS installation" is selected automatically.

   The Top menu appears.
4. Select [Perform the Express setup] from the Top menu and click [Next].


NEC
EXPRESSBUILDER
Step
Top menu
1
Welcome to the NEC EXPRESSBUILDER (writes as "EXPRESSBUILDER" at the following). EXPRESSBUILDER helps you to install the Operating system.
Check the radio button and click "Next".
-- If you want to install an Operating System or to build a RAID sub system, select "Perform the Express setup".
-- If you want to stop the operation of EXPRESSBUILDER, select "Exit EXPRESSBUILDER".
Perform the Express setup
Create the OEM-Disk for Windows
Save or restore the configuration data of the RAID controller
Load the optional driver into the EXPRESSBUILDER
Exit EXPRESSBUILDER
Next
Version 5.XX-XXX.XX

5. The [Load parameters] steps are displayed.



[Do not load parameters]

(1) Select [Do not load parameters] if you do not have a parameters file.

(2) Click [Next].

NOTE: If a floppy disk drive is not connected, select this item.

[Load parameters]

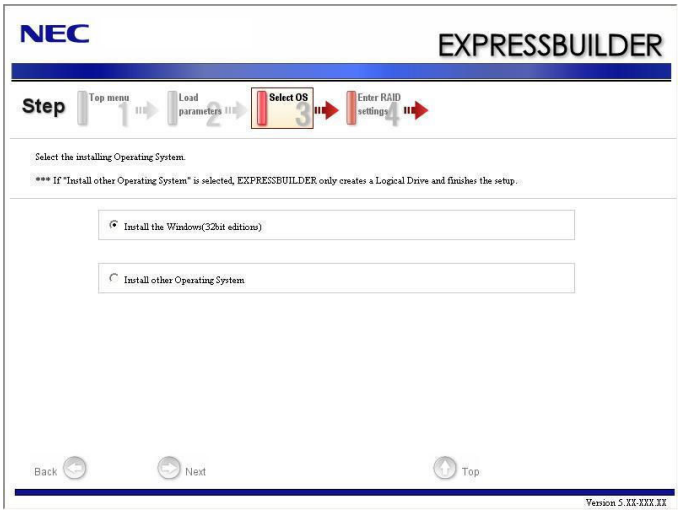
(1) Insert the floppy disk containing the parameters file.

(2) Select [Load parameters] and enter the file path of the parameters file in the text box.

(3) Click [Next].

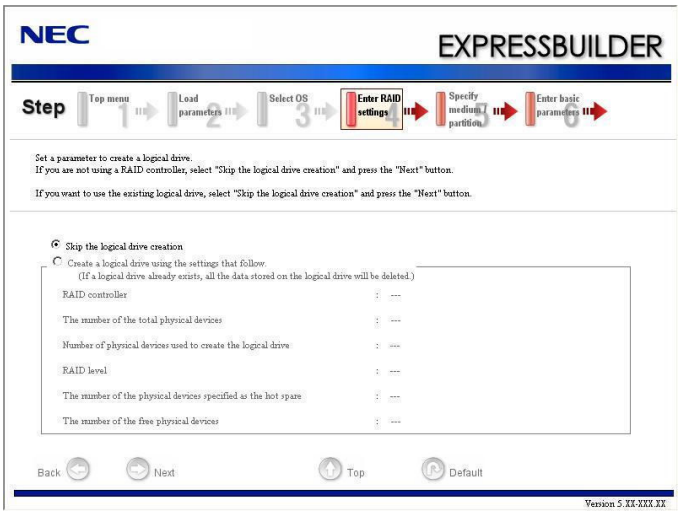
6. Select the operating system to install.

Select [Install the Windows (32bit editions)] from the menu and click [Next].



7. Enter the logical drive settings.

The [Enter RAID settings] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

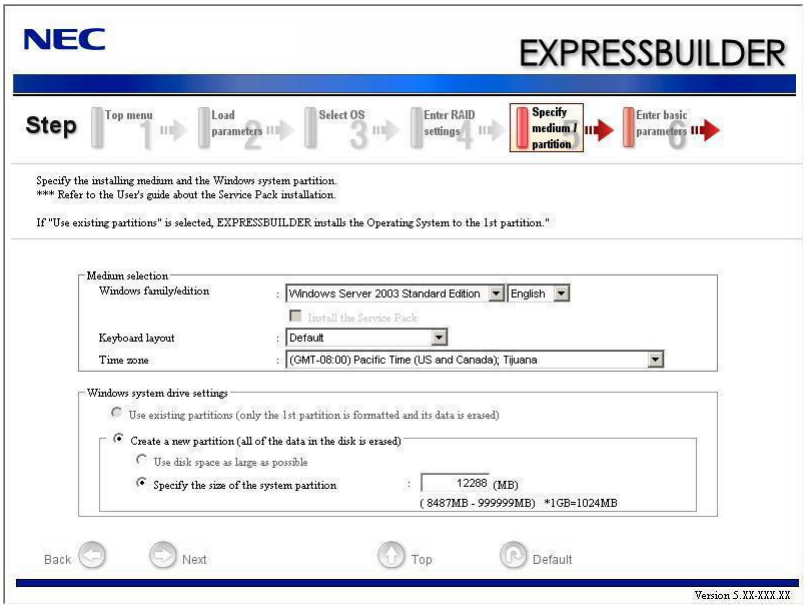

NEC
EXPRESSBUILDER
Step
Top menu
Load parameters
Select OS
Enter RAID settings
Specify medium / partition
Enter basic parameters
Set a parameter to create a logical drive.
If you are not using a RAID controller, select "Skip the logical drive creation" and press the "Next" button.
If you want to use the existing logical drive, select "Skip the logical drive creation" and press the "Next" button.
Skip the logical drive creation
Create a logical drive using the settings that follow.
(If a logical drive already exists, all the data stored on the logical drive will be deleted.)
RAID controller
The number of the total physical devices
Number of physical devices used to create the logical drive
RAID level
The number of the physical devices specified as the hot spare
The number of the free physical devices
Back
Next
Top
Default
Version 5.XX-XXX.XX

NOTES:

- You can use only the physical devices that have the same model number to configure a logical drive.
- If the process does not complete normally, the driver may not be stored in EXPRESSBUILDER. Refer to "Optional Board Supported by NEC EXPRESSBUILDER" described earlier in this chapter.

8. Specify the installation medium and the Windows system partition.

The [Specify medium / Partition] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].


NEC
EXPRESSBUILDER
Step
Top menu
Load parameters
Select OS
Enter RAID settings
Specify medium / partition
Enter basic parameters
Specify the installing medium and the Windows system partition.
*** Refer to the User's guide about the Service Pack installation.
If "Use existing partitions" is selected, EXPRESSBUILDER installs the Operating System to the 1st partition."
Medium selection
Windows family/edition
Windows Server 2003 Standard Edition
English
Install the Service Pack
Keyboard layout
Default
Time zone
(GMT-08:00) Pacific Time (US and Canada); Tijuana
Windows system drive settings
Use existing partitions (only the 1st partition is formatted and its data is erased)
Create a new partition (all of the data in the disk is erased)
Use disk space as large as possible
Specify the size of the system partition
12288 (MB)
(8487MB - 999999MB) *1GB=1024MB
Back
Next
Top
Default
Version 5.XX-XXX.XX

IMPORTANT:

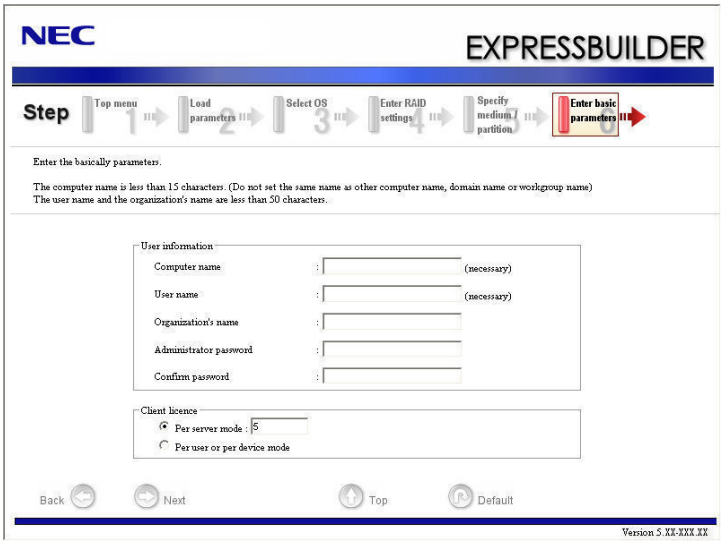
- About partition size
  - Specify a partition size larger than the required minimum size for operating system installation.
  - Do not specify a partition size larger than the capacity of the connected hard disk drive.
  - You cannot specify a partition size larger than 2,097,152MB (2TB) for a RAID system.
- If you select "Create a new partition" in "Windows system drive settings," the contents of the hard disk will be deleted.
- If "Use existing partitions" is selected, EXPRESSBUILDER installs the operating system to the first partition (the first partition is deleted). The data in the other partitions is retained if the system has two or more partitions (see the figure below).

First Partition Deleted	Second Partition Retained	Third Partition Retained

- You cannot reinstall the system if the existing partition is upgraded to a dynamic disk. Do not select "Use existing partitions" in "Windows system drive settings."

9. Enter the user information and client license mode.

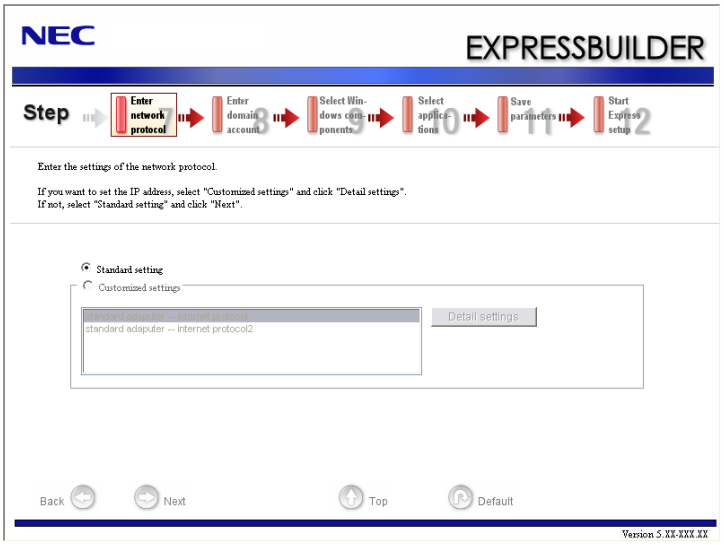
The [Enter basic parameters] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



NOTE: Even if you do not enter an Administrator password, "●●●●●●" is displayed in "Administrator password" and "Confirm password."

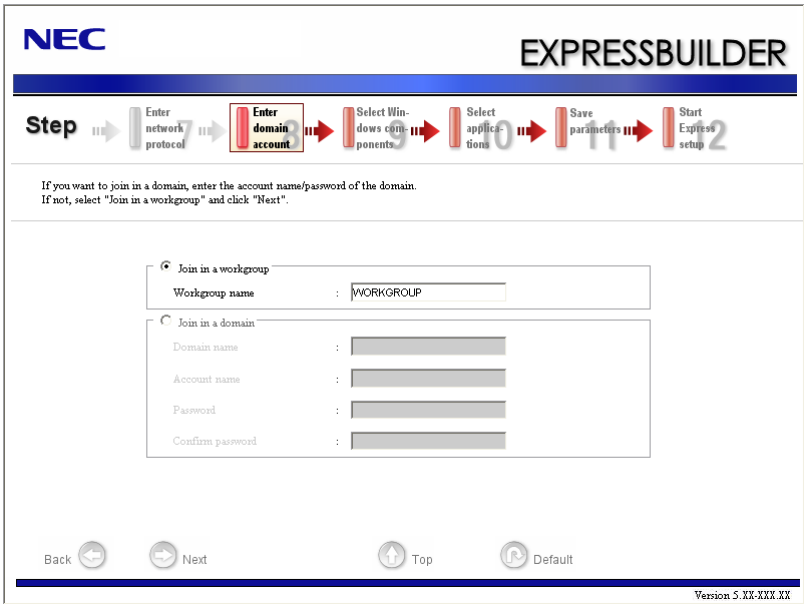
10. Enter the network protocol settings.

The [Enter Network Protocol] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



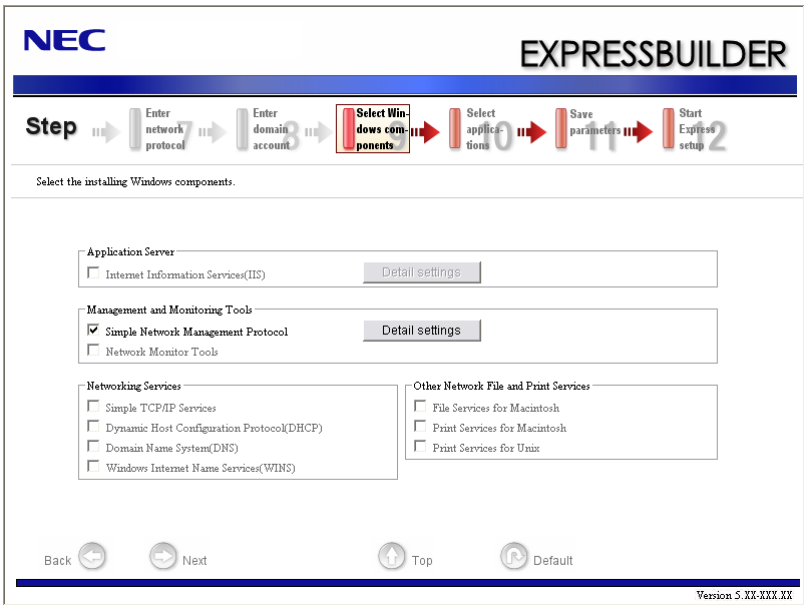
11. Enter the domain or workgroup name.

The [Enter domain account] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



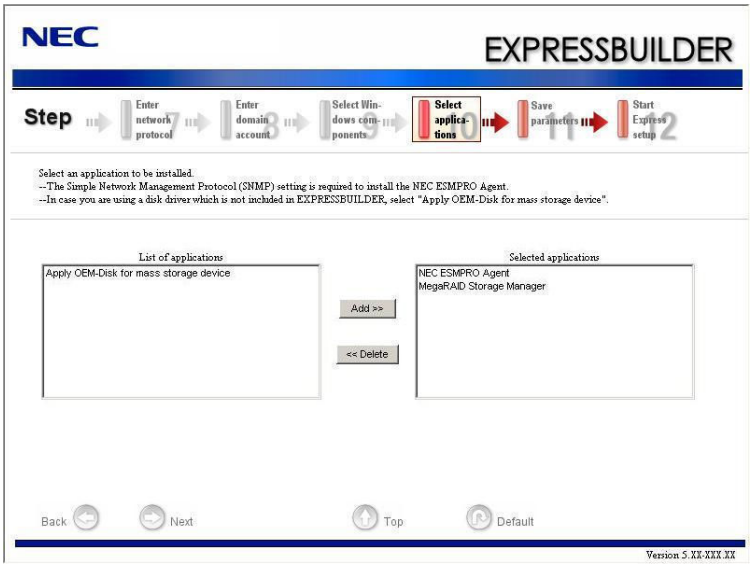
12. Select the Windows components to install.

The [Select Windows components] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



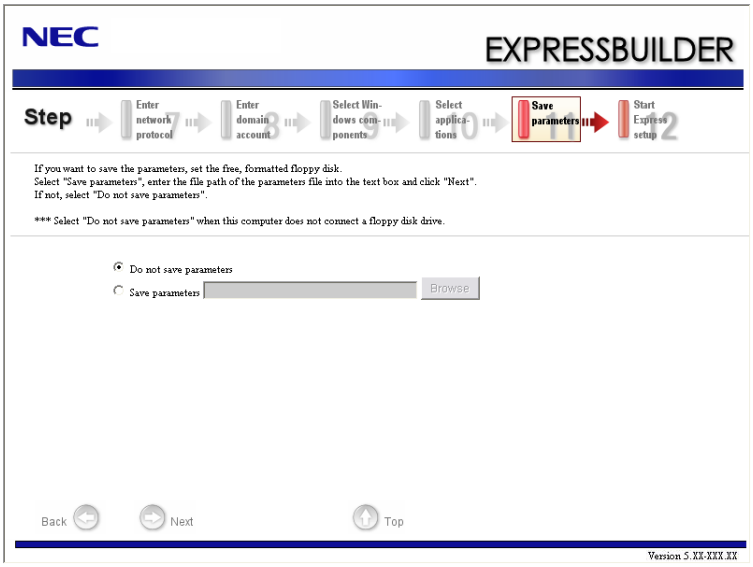
13. Select the applications to install.

The [Select applications] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



14. Save the parameters.

The [Save parameters] steps are displayed.

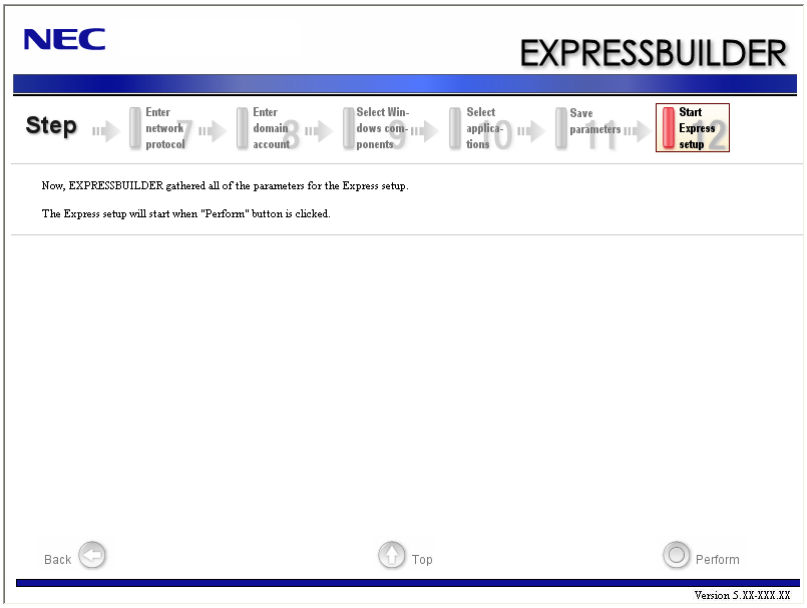

NEC
EXPRESSBUILDER
Step
Enter network protocol
Enter domain account
Select Windows components
Select applications
Save parameters
Start Express setup
If you want to save the parameters, set the free, formatted floppy disk.
Select "Save parameters", enter the file path of the parameters file into the text box and click "Next".
If not, select "Do not save parameters".
*** Select "Do not save parameters" when this computer does not connect a floppy disk drive.
Do not save parameters
Save parameters
Browse
Back
Next
Top
Version 5.XX-XXX.XX

If you want to save the parameters, insert a formatted floppy disk.

Select [Save parameters], enter the file path of the parameters file in the text box, and click [Next].

If not, select [Do not save parameters].

15. Express Setup will start when you click [Perform] in the [Start Express setup] step.



16. Copy optional Mass Storage Driver.

If you need to install an optional mass storage driver, a message will appear.

Insert the CD-ROM or floppy disk containing the mass storage driver and proceed according to the messages.

17. Remove the NEC EXPRESSBUILDER DVD from the optical disc drive according to the message.

If you proceed with setup by using a parameters file, remove the floppy disk from the floppy disk drive.

Insert the Windows Server 2003 CD-ROM into the optical disc drive.

The [Agree Software License Agreement] screen appears.

18. Read the contents carefully and click [Yes] if you agree. If you do not agree, click [No].

IMPORTANT:

- If you do not agree to this license, setup terminates and Windows Server 2003 will not be installed.
- If the "NetWare Gateway (and Client) Service" is specified to install, a window to specify settings for the "NetWare Gateway (and Client) Service" pops up on the first logon. Specify the appropriate values.

Windows Server 2003 and selected applications will be installed automatically and the server will reboot several times.

After rebooting, it logs on to the system automatically.

19. If you install Microsoft Windows Server 2003 R2, insert the Microsoft Windows Server 2003 R2 Standard Edition DISC 2 or Microsoft Windows Server 2003 R2 Enterprise Edition DISC 2 into the optical disc drive after the operating system installation.

When the installation finishes, remove the Microsoft Windows Server 2003 R2 Standard Edition DISC 2 or Microsoft Windows Server 2003 R2 Enterprise Edition DISC 2 from the optical disc drive and restart the system.

Express Setup is complete.

INSTALLING AND SETTING DEVICE DRIVERS

Follow these steps to install and configure the device drivers.

PROSet

> **NOTE:** All of the following operations must be performed by a user with administrator privileges. Operation by [Remote Desktop Connection] is prohibited.
> When viewing the adapter teaming settings in the adapter properties dialog box, click [Cancel] if you have not made any changes. Clicking [OK] may cause temporary loss of network connectivity.

PROSet is a utility that configures and monitors the functions of the network adapter.

PROSet provides the following functions:

- Detailed adapter information.
- Diagnosis by using loopback and packet send tests.
- Teaming configuration.

Configuring several network adapters as one team provides a fault-tolerant networking environment and enhances throughput between the switches.

PROSet is necessary to utilize these features.

Follow the procedure below to install PROSet:

1. Insert the NEC EXPRESSBUILDER DVD into the optical disc drive.

   If the autorun menu appears, close the menu screen.

2. Open [Windows Explorer].

   Click [Start], click [Programs], click [Accessories], and click [Windows Explorer].

3. Run "dxsetup.exe" in the following directory:

   \001\win\winnt\dotnet\ns41s\proset\2kxpws03

   The [Intel(R) PROSet - Install Shield Wizard] starts.

4. Click [Next].

5. In the [License Agreement] window, select [I Accept the terms in the license agreement].

6. Click [Next].

7. Select [Complete] and click [Next].

8. Click [Install] to begin the installation and then click [Finish] in [InstallShield Wizard Completed].

9. Restart the system.

Network Driver

Configure the settings of the network driver.

The standard network driver will be installed automatically, but the link speed and Duplex mode need to be specified manually.

[When PROSet is not installed]

1. Open [Local Area Connection Properties].

   * For the standard start menu:

     1. Click [Start], click [Control Panel], click [Network Connections], and click [Local Area Connection].

   * For the classic start menu

     1. Click Start, click [Settings], and click [Network Connections].

        The [Network Connections] dialog box appears.

     2. Right-click [Local Area Connection] and click [Properties].

2. Click [Configure].

   The properties dialog box for the network adapter appears.

3. Click the [Advanced] tab and specify [Link Speed & Duplex] values that match the hub.

4. Click [OK].

[When PROSet is installed]

1. Open [Intel(R) PROSet].

   * For the standard start menu:

     Click [Start], click [Control Panel], click [Administrative Tools], and click [Computer Management]. Double-click the [(Network Adapter Name)] in the Network Adapter list.

   * For the classic start menu:

     1. Click Start, click [Settings], and click [Control Panel].
     2. Click [Administrative Tools].
     3. Click [Computer Management] and double-click the [(Network Adapter Name)] in the Network Adapter list.

2. Click the [Link] tab and specify [Speed and Duplex] values that match the hub.

3. Click [Apply] and then click [OK].

Also, add or delete any protocols and services if necessary.

NOTE: It is recommend to add [Network Monitor] in [Adding Services]. [Network Monitor] can monitor the frame (or packet) that the computer sends or receives. This tool is valuable when analyzing network issues. For information on how to install the tool, see "Setting for Solving Problems" described later in this chapter.

Optional Network Board Driver

If you want to use the optional Network Board (N8403-017/020), install the driver stored on the NEC EXPRESSBUILDER DVD.

The driver is in the following directory:

"\001\win\winnt\dotnet\ns41s\pro1000\ws03xp2k"

Refer to the installation procedure described in the section "Installation of the Optional Network Board Driver."

Installation of the Optional Network Board Driver

1. Open [Device Manager].
2. Click [Network adapters] and double-click [(Network Adapter Name)].

   [(Network Adapter Name) Properties] appears.

   NOTE: [(Intel(R) PRO/1000...)] is the name of the onboard adapter. All other names are for the Optional Network Board.

3. Click the [Driver] tab and click [Update Driver...]. The [Hardware Update Wizard] appears.
4. Select the [Install from a list or specific location (Advanced)] radio button and click [Next].
5. Select the [Search for the best driver in these locations] radio button and check the [Search removable media (floppy, CD-ROM...)] check box.
6. Check the [Include this location in the search] check box and specify:

   "\001\win\winnt\dotnet\ns41s\pro1000\ws03xp2k"

   Then, click [Next].
7. Click [Finish].

Adapter Fault Tolerance (AFT)/Adaptive Load Balancing (ALB)

Adapter Fault Tolerance (AFT) is a feature that places more than one LAN controller on the same LAN (same segment), and automatically switches the process of the primary controller to the backup controller when any trouble occurs on the primary.

Adaptive Load Balancing (ALB) is a feature that connects more than one LAN controller to the same hub and enhances the throughput by operating packet transmission from the server.

This feature includes the AFT feature.

IMPORTANT:

- AFT/ALB configuration must be done after installing the drivers and restarting the system.
- All adapters specified as a group in Adapter Teaming must exist on the same LAN. If they are connected to separate switches, they will not work normally.
- The adapters specified as a group for Adaptive Load Balancing (ALB) can only be connected to the switching hub.
- Before replacing the motherboard or option network card, make sure to remove the adapter team. Recreate the adapter team after the replacement is complete.

If you want to use the AFT/ALB features, follow the procedure below:

1. Open [Intel (R) PROSet].

   Click [Start], click [Control Panel], click [Administrative Tools], and click [Computer Management]. Double-click the [(Network Adapter Name)] in the Network Adapter list.

2. Select the [Teaming] tab, check [Team with other adapters], and click [New Team...].

   The [New Team Wizard] dialog box appears. Click [Next].

   * Specify a name for the team if necessary.

3. Select the adapters to include in the team.
4. Select "Adapter Fault Tolerance" or "Adaptive Load Balancing" and click [Next].
5. Click [Finish].

6. If it is necessary to set the adapter priority setting, refer to the following step.
If it is not necessary, go to Step 7.

1. Click the [Settings] tab in [TEAM:xxx #yy Properties].
2. Click [Modify Team].
3. Select the adapter [Intel(R)PRO/1000....] and click [Set Primary] or [Set Secondary].
4. Click [OK].
5. In [TEAM:xxx #yy Properties], the priority setting will appear in the list.
6. Click [OK].

7. In the [Intel (R) PROSet for Wired Connections] dialog box, click [OK].

8. Restart the system.

Graphics Accelerator Driver

The driver for the standard graphics accelerator will be installed automatically. The following procedure describes how to install it manually::

1. Insert the NEC EXPRESSBUILDER DVD into the optical disc drive.

   If the autorun menu appears, close the menu screen.

2. Click [Start], click [Programs], click [Accessories], and click [Windows Explorer].

3. Run "setup.exe" in the following directory:

   \001\win\winnt\dotnet\video\matrox\setup.exe

4. Follow the messages to continue the installation.

   If the message "Digital Signature could not been found" appears, select [Yes] to continue.

5. Remove the NEC EXPRESSBUILDER DVD from the optical disc drive and restart the system.

Installing N8403-018 FibreChannel Controller

If you use the FibreChannel Controller (N8403-018), update your system with the NEC EXPRESSBUILDER DVD.

The FibreChannel Controller driver will be installed automatically.

Available switch options for Windows Server 2003 Boot.ini file

Many different switche options are available for the Boot.ini file.

For the available switch options, refer to the following information:

- Microsoft Knowledge Base - Article ID: 833721

  "Available switch options for the Windows XP and the Windows Server 2003 Boot.ini files"

If your system has in excess of 4GB of memory installed, adding the /PAE switch in the Boot.ini file will enable the system to address over 4GB of memory.

However, the Microsoft operating systems which support the /PAE switch option are limited.

Refer to the following article in Microsoft Knowledge Base to check the supported products:

- Microsoft Knowledge Base - Article ID: 291988

  "A description of the 4GB RAM tuning feature and the Physical Address Extension switch"

on the following example shows how to add the /PAE switch to the Boot.ini file:

1. Click [Start], click [Settings], and then click [Control Panel].
2. In [Control Panel], double-click [System].
3. Click the [Advanced] tab and then click [Settings] under [Setup and Recovery].
4. Under [System Setup], click [Edit] to open [Boot.ini].
5. Add "/PAE" to the [Operating Systems] section in the [Boot.ini] file and then save it.

   <Example of Boot.ini file>

```
[boot loader]
timeout=30
default=multi(0)disk(0)rdisk(0)partition(2)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Windows Server 2003" /fastdetect
multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Windows Server 2003, PAE" /fastdetect
/PAE
C:\CMDCONS\BOOTSECT.DAT="Microsoft Windows Recovery Console" /cmdcons
```

NOTE: If you choose one of the items in the "Default operating system" drop-down list box in [Setup and Recovery], you can start the system automatically with the switch you specified.

SETTING FOR SOLVING PROBLEMS

Configure the following settings in advance to ensure quick recovery from system failures.

Memory Dump (Debug Information)

This section describes the procedures for collecting memory dump (debug information) on the server.

IMPORTANT: Cautions for the Memory Dump

- The maintenance personnel designated by your sales agent are responsible for collecting the memory dump. Customers should only configure settings of the memory dump.
- Sometimes a message indicating a shortage of virtual memory appears at system startup. When a failure has occurred after configuring the settings described here and you have restarted the system to save the memory dump, continue the startup. If you restart the system, you may not be able to collect the memory dump accurately.

Follow the procedure below to configure the memory dump:

1. Click [Start], click [Control Panel], and then open [System].

   The [System Properties] dialog box appears.

2. Select the [Advanced] tab.
3. Click [Settings] in the [Startup and Recovery] box.

IMPORTANT:

Windows Server 2003 x64 Editions

- [Complete memory dump] should be specified for writing debug information.
  However, if the mounted memory size is over 2GB, specify [Kernel memory dump]. You cannot specify [Complete memory dump].
- Specify a disk drive that has free space in excess of the memory size on the system +1MB or more.
- If the memory is expanded to more than 2GB, change Write Debugging Information to [Kernel memory dump] before expanding the memory. The size of the debugging information (memory dump) to be collected changes due to the memory increase. Verify how much free space exists on the hard disk where debugging information is to be written.

Windows Server 2003

- [Complete memory dump] should be specified for writing debug information. However, if the mounted memory size is over 2GB, specify [Kernel Memory Dump]. You cannot specify [Complete memory dump].
- Specify a drive that has free space in excess of the memory size on the system + 12MB or more (if the memory size is over 2GB, 2048MB + 12MB).
- If the memory is expanded to more than 2GB, change Write Debugging Information to [Kernel memory dump] before expanding the memory. The size of the debugging information (memory dump) to be collected changes due to the memory increase. Verify how much free space exists on the hard disk where debugging information is to be written.

4. Specify "Complete memory dump" and enter the location where debug information is to be written in the text box.

When writing debug information under the file name “MEMORY.DMP” in the D drive:

D:\MEMORY.DMP

5. Click [Settings] in the [Performance] box.

The [Performance Options] window appears.

6. Click the [Advanced] tab on the [Performance Options] window.

7. Click [Change] in the [Virtual memory] box.

8. Change the value set for [Initial Size] in the [Paging file size for selected drive] box to the [Recommended] value or more, and then click [Set].

IMPORTANT:

- Be sure to set the paging file size to more than the [Recommended] value in the operating system partition. If a value smaller than the [Recommended] value is set for [Initial Size] of the paging file, accurate debug information (memory dump) may not be collected.
- For more information on the "Recommended" value, see "About the System Partition Size" described earlier.
- If the memory is expanded, reset the paging file size according to the memory size.

9. Click [OK].

A message is displayed asking you to restart the system depending on the settings changed. Restart the system according to the message.

Windows Dr. Watson

Dr. Watson is a debugger for application errors. When an application error occurs, Dr. Watson diagnoses the system and records the diagnostic information in a log file. Configure Dr. Watson to collect diagnostic information in the following procedure:

1. Click [Run...] on the [Start] menu.
2. Enter "drwtsn32.exe" in the [Open] box and click [OK].

   The [Dr. Watson for Windows] dialog box appears.
3. Specify the location to store the diagnostic information in the [Log File Path] box.

   Diagnostic information is saved under the file name “DRWTSN32.LOG.”

   NOTE: You cannot specify a network path. Specify a path on the local system.
4. Specify the location of the crash dump file in the [Crash Dump] box.

   NOTE: A "Crash Dump File" is a binary file that can be read with Windows Debugger.
5. Check the following check boxes in the [Options] box:

   ☐ Dump Symbol Table
   ☐ Dump All Thread Contexts
   ☐ Add To Existing Log File
   ☐ Create Crash Dump File

   For more information on each of the above functions, refer to Online Help.
6. Click [OK].

Network Monitor

A network monitor is useful for discovering the causes of network failures and determining the necessary steps to resolve them. To use a network monitor, you need to restart the system after installation. It is recommended to install a network monitor before a failure occurs.

1. From the [Start] menu, click [Control Panel].

   The [Control Panel] appears.

2. Double-click [Add or Remove Programs].

   The [Add or Remove Programs] dialog box appears.

3. Click [Add/Remove Windows Component].

   The [Windows Components Wizard] dialog box appears.

4. Click [Management and Monitoring Tools] and then click [Details].

   The [Management and Monitoring Tools] dialog appears.

5. Check the [Network Monitor Tools] check box and then click [OK].

6. The [Windows Components Wizard] dialog box appears. Click [Next].

7. If a message is displayed asking you to insert the operating system disc, follow the instructions on the screen and click [OK].

8. Click [Finish] in the [Windows Component Wizard] dialog box.

9. Close the [Add or Remove Programs] dialog box.

10. Close the [Control Panel].

To start Network Monitor, click [Programs], click [Administrative Tools], and click [Network Monitor]. For information on how to operate Network Monitor, refer to Online Help.

INSTALLING MAINTENANCE UTILITIES

Various maintenance utilities are contained on the NEC EXPRESSBUILDER DVD. See Chapter 6 for information on installing the utilities.

UPDATING THE SYSTEM

"Updating the System" is executed by Express Setup automatically.

Execute "Updating the System" in the following cases:

- Modifying the system configuration.
- Recovering the system using the recovery process.

See "Updating the System - Applying Service Pack -" in Appendix B for details on the update process.

MAKING BACKUP COPIES OF SYSTEM INFORMATION

The system information includes the current BIOS settings and any specific information for the server.

Save the information after completing the system setup.

Without the backup data, you will not be able to recover the information.

You can save the information in the following procedure:

1. Insert the NEC EXPRESSBUILDER DVD into the optical disc drive and reboot the system.
2. Select [Tool menu (Normal mode)].
3. Select [English].
4. Select [Maintenance Utility].
5. Select [System Information Management].
6. Insert a floppy disk into the floppy disk drive.
7. Select [Save].

Installing with the OEM-FD for Mass Storage Device

This section explains how to install a driver for a mass storage devices when using NEC EXPRESSBUILDER to install an operating system. If your mass storage device is not supported by NEC EXPRESSBUILDER, you must follow the procedure below.. For more detailed information, refer to the manual of the mass storage device.

Installation of Mass storage device not supported by EXPRESSBUILDER

To install or re-install the operating system when the system has a mass storage device not supported by NEC EXPRESSBUILDER, follow the procedure below:

1. Read the manual supplied with the mass storage device before setting up the server.
2. If the mass storage device is a RAID Controller, configure the RAID array before running NEC EXPRESSBUILDER.
3. Boot the system from the NEC EXPRESSBUILDER DVD.
4. Select [Load the optional driver into the EXPRESSBUILDER] from the Top menu and click [Next].

   Insert the driver disk for the mass storage device. Press the "Perform" button.

   NOTE: By choosing this option, you can load the driver for the mass storage device to proceed with Express Setup.

5. Perform Express Setup with the following settings:

   (a) When "Enter RAID settings" appears, select "Skip the logical drive creation."

   (b) Select "Apply OEM-Disk for Mass storage device."

6. Copy the driver for the mass storage device in Express Setup.

   Insert the driver disk for the mass storage device.

   Continue Express Setup.

Chapter 6

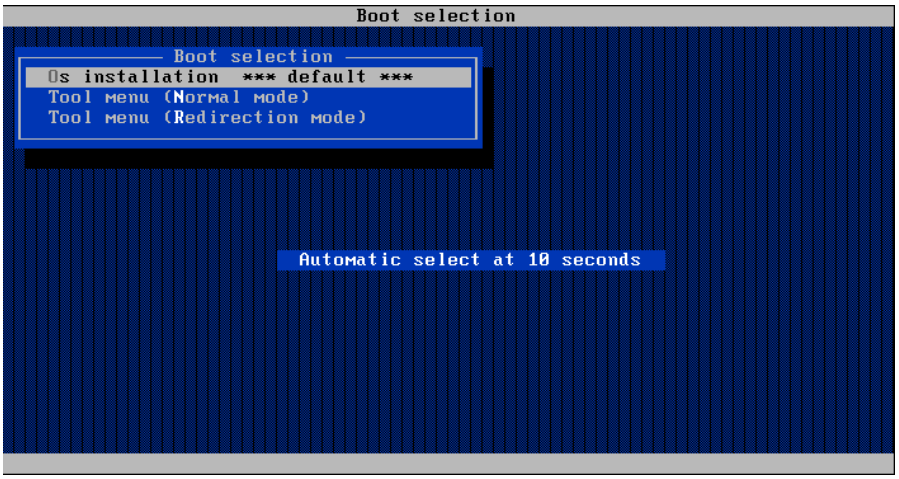
Installing and Using Utilities

This section describes how to use the NEC EXPRESSBUILDER DVD to install utilities on your server.

NEC EXPRESSBUILDER

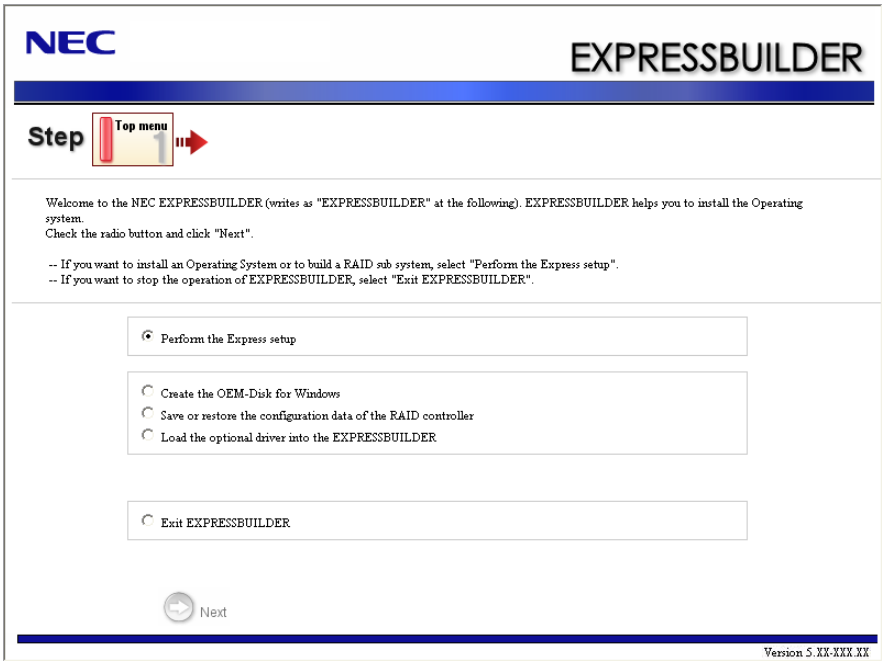
NEC EXPRESSBUILDER (hereafter referred to as EXPRESSBUILDER) helps you install the operating system and management software or use the maintenance utilities.

When you insert the EXPRESSBUILDER disc into the DVD drive and reboot the system, the following menu appears:



■ OS installation

If you select this item, the Top menu appears.


NEC
EXPRESSBUILDER
Step
Top menu
1
Welcome to the NEC EXPRESSBUILDER (writes as "EXPRESSBUILDER" at the following). EXPRESSBUILDER helps you to install the Operating system.
Check the radio button and click "Next".
-- If you want to install an Operating System or to build a RAID sub system, select "Perform the Express setup".
-- If you want to stop the operation of EXPRESSBUILDER, select "Exit EXPRESSBUILDER".
Perform the Express setup
Create the OEM-Disk for Windows
Save or restore the configuration data of the RAID controller
Load the optional driver into the EXPRESSBUILDER
Exit EXPRESSBUILDER
Next
Version 5.XX-XXX.XX

IMPORTANT:

- This tool is a configuration tool that is built on Windows PE 2.0 technology.
  Pay attention to the automatic reboot that occurs 72 hours after start.
- Configuration with Windows PE 2.0 is supported by Windows Server 2003 (32bit) and Windows Vista Business (32-bit).

You can use Express Setup (see Chapter 5) or the following functions from this menu:

– Create the OEM-Disk

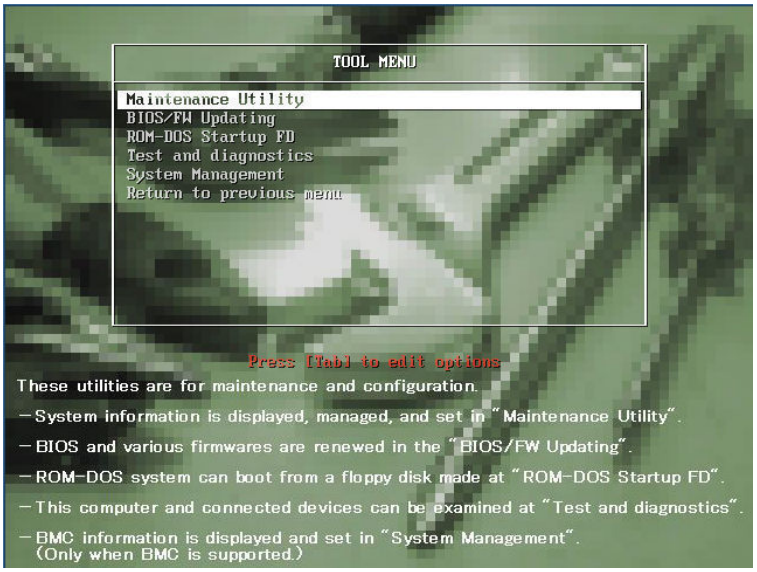
  You can create a Windows OEM-Disk to use for Windows manual setup.

– Load the driver

  This function is not normally used. If you add a new device to the server, you may need to use this function (see Chapter 5).

■ Tool menu (Normal Mode)

If you select this item, the Tool menu appears.


TOOL MENU
Maintenance Utility
BIOS/FW Updating
ROM-DOS Startup FD
Test and diagnostics
System Management
Return to previous menu
Press [Tab] to edit options
These utilities are for maintenance and configuration.
－System information is displayed, managed, and set in "Maintenance Utility".
－BIOS and various firmwares are renewed in the "BIOS/FW Updating".
－ROM-DOS system can boot from a floppy disk made at "ROM-DOS Startup FD".
－This computer and connected devices can be examined at "Test and diagnostics".
－BMC information is displayed and set in "System Management".
(Only when BMC is supported.)

You can use the following maintenance functions:

– Maintenance Utility

The Maintenance Utility is usually used by the service representative (see Chapter 8).

– BIOS/FW Updating

You can update the system BIOS by using a floppy disk (prepare a 3.5" floppy disk).

– ROM-DOS Startup FD

The ROM-DOS Startup FD is used for starting the ROM-DOS system.

– Test and diagnostics

This function allows you to diagnose the server (see Chapter 7).

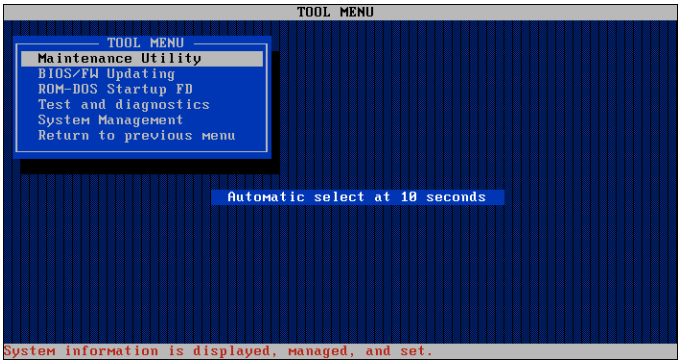
– System Management

You can configure the parameters of BMC (Baseboard Management Controller).

■ Tool menu (Redirection Mode)

If you want to operate the server via the BIOS redirection (the console-less function), select this item.

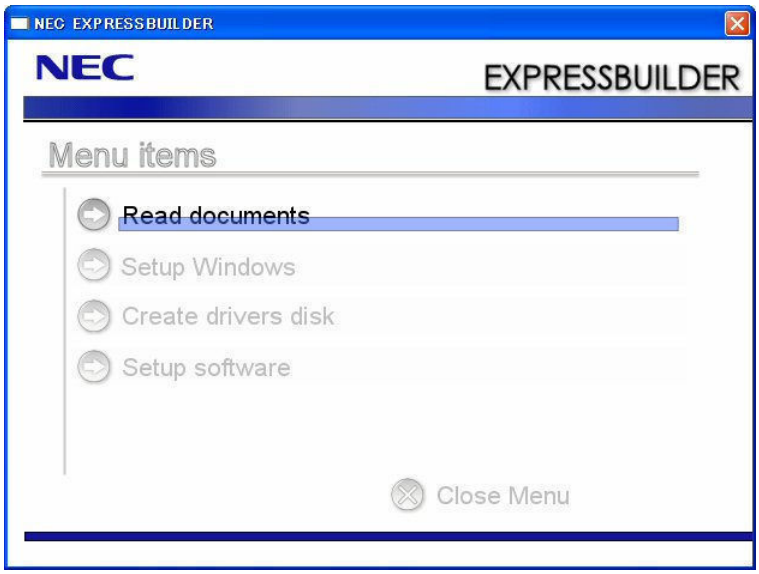
NOTE: If you operate the server via the Remote KVM function, select the "Tool menu (Normal mode)."



The menu's functions are the same as the "Tool menu (Normal Mode)."

Autorun Menu

When the EXPRESSBUILDER disc is inserted into the DVD drive, Windows automatically launches the menu shown below:



From this menu you can do the following:

- Read the User's Guide or other documents.
- Update the server system (Windows drivers).
- Install the management software.

NOTES:

- This menu requires Microsoft Windows XP, Vista, or Windows Server 2003 (or later).
- Some documents are provided in PDF format. Use Adobe Reader to view or print these documents.

If the menu does not appear, open "My Computer" and double-click the icon of the DVD drive that contains the EXPRESSBUILDER DVD.

Some menu items are grayed-out when the logon user is not an administrator or the menu item is not available for your system.

To use the menu,

- Click the menu items or
- Click the right mouse button on the menu window

PARAMETER FILE CREATOR

The Parameter File Creator is a tool that creates a parameters file that is used to configure the server with Express Setup (see Chapter 5 for details).

Using a parameters file with Express Setup automates many of the installation steps of the operating system and system utilities. Also, you can reinstall the system with the same settings as before by using a parameter file. It is recommended to create a parameters file to setup the server with NEC EXPRESSBUILDER.

When using a floppy disk, a USB floppy disk drive is required.

IMPORTANT: You cannot create a parameters file for Microsoft Windows Server 2003 x64 Editions.

NOTE: You can install Windows Server 2003 without a parameters file. Also, you can create or edit a parameters file during setup with NEC EXPRESSBUILDER.

Parameters File

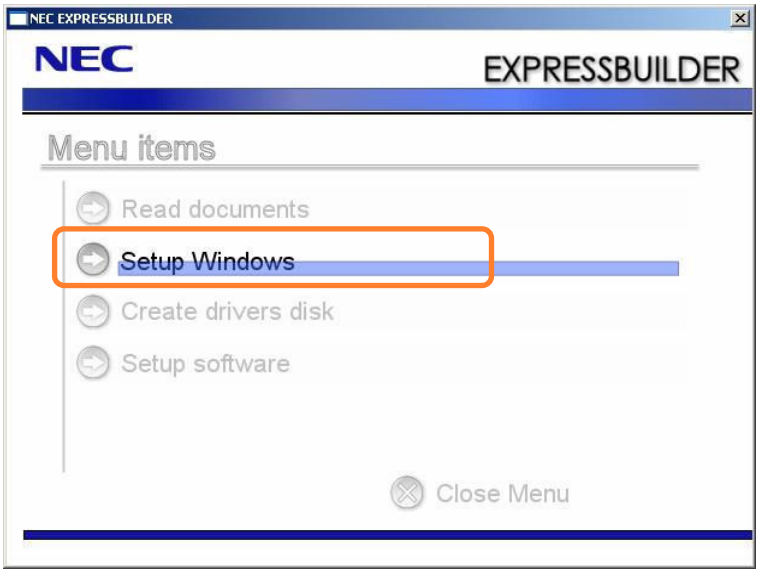
This section describes the setup information that is necessary for operating system installation and creating a parameters file.

Follow the procedure below:

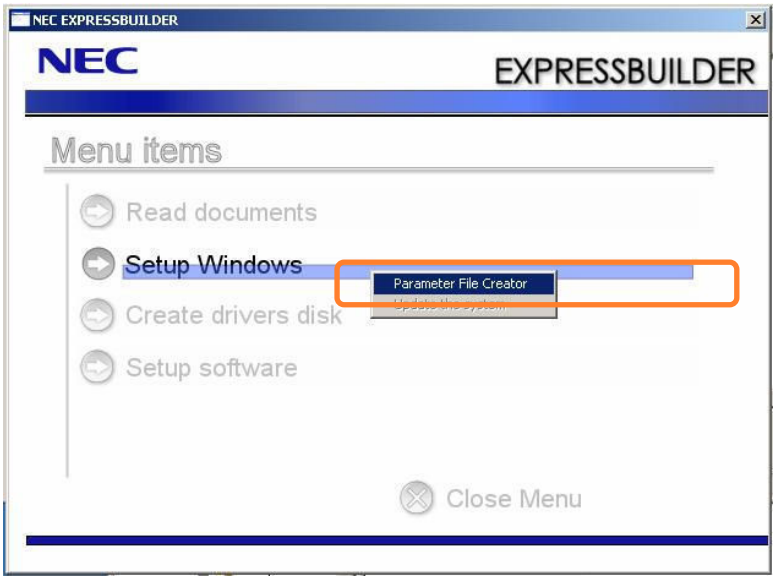
> **IMPORTANT:** Do not remove the NEC EXPRESSBUILDER DVD from the drive during parameters file creation.

1. Start the operating system.
2. Insert the NEC EXPRESSBUILDER DVD into the optical disc drive.

   The NEC EXPRESSBUILDER menu appears.
3. Click [Setup Windows]. A menu appears.



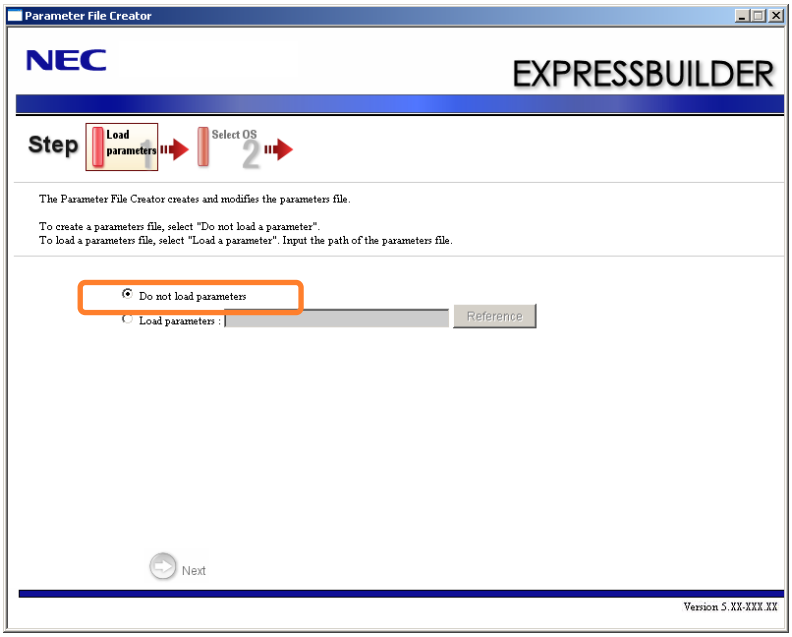
4. Click [Parameter File Creator].



The Parameter File Creator appears.

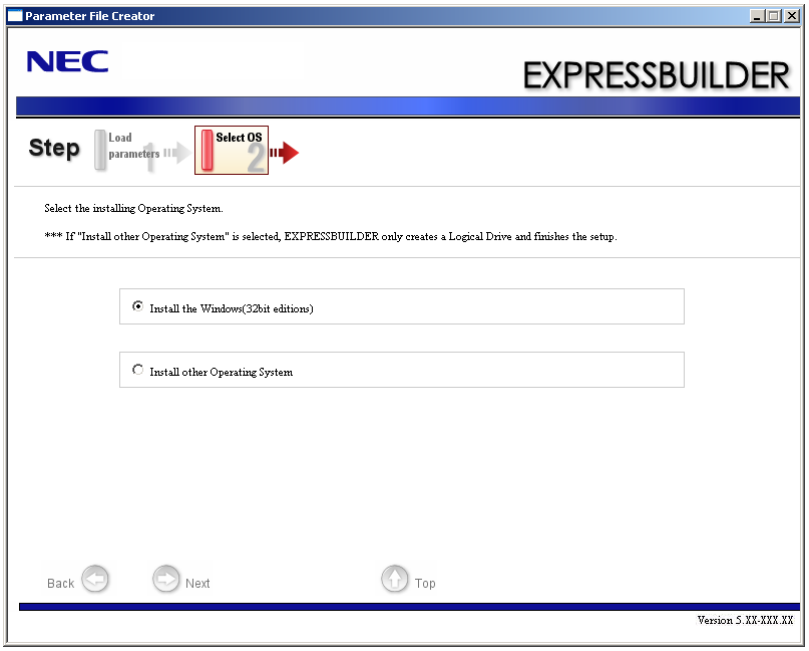
5. The [Load Parameters] step is displayed.

Select [Do not load parameters] from the menu and click [Next].


Parameter File Creator
NEC
EXPRESSBUILDER
Step
Load parameters
Select OS
The Parameter File Creator creates and modifies the parameters file.
To create a parameters file, select "Do not load a parameter".
To load a parameters file, select "Load a parameter". Input the path of the parameters file.
Do not load parameters
Load parameters :
Reference
Next
Version 5.XX-XXX.XX

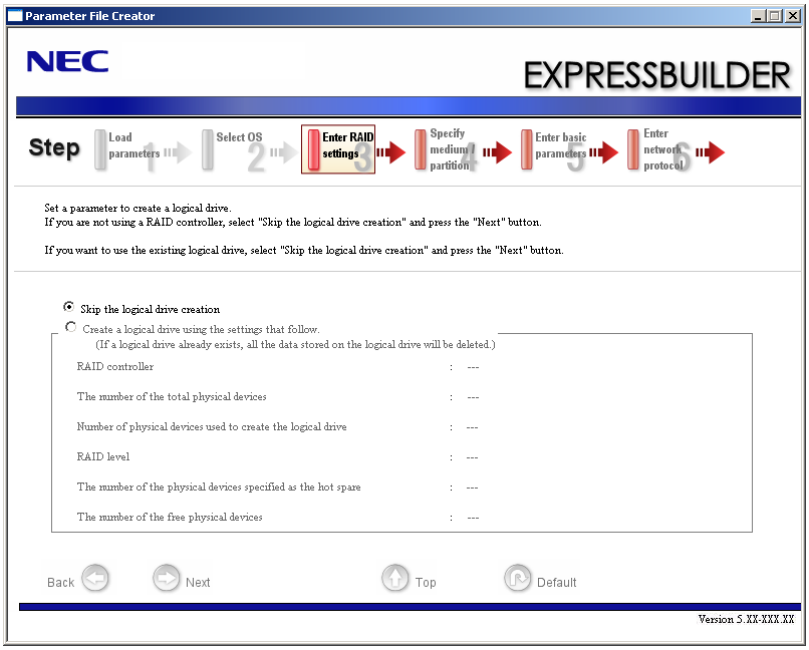
6. Select the operating system to install.

Select [Install the Windows (32bit editions)] from the menu and click [Next].



7. Enter the logical drive settings.

The [Enter RAID setting] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

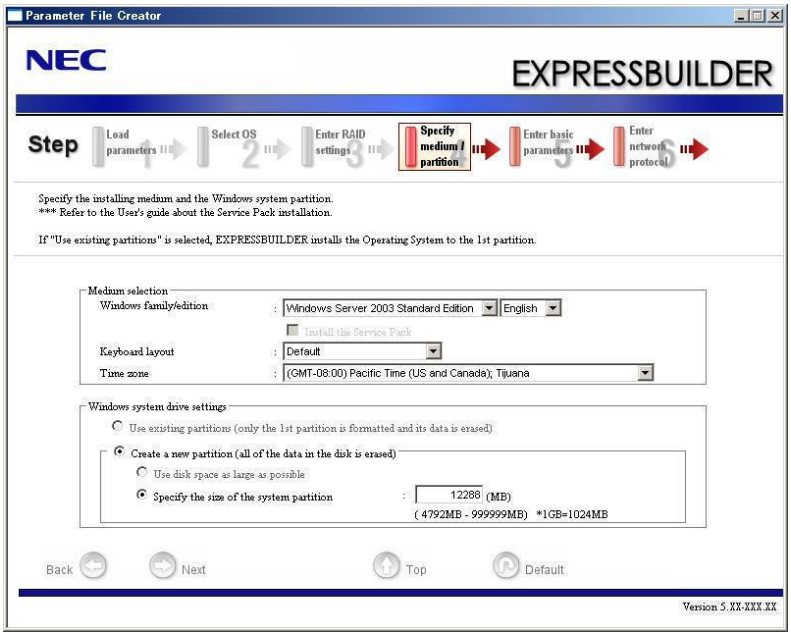

Parameter File Creator
NEC
EXPRESSBUILDER
Step
Load parameters
Select OS
Enter RAID settings
Specify medium/ partition
Enter basic parameters
Enter network protocol
Set a parameter to create a logical drive.
If you are not using a RAID controller, select "Skip the logical drive creation" and press the "Next" button.
If you want to use the existing logical drive, select "Skip the logical drive creation" and press the "Next" button.
Skip the logical drive creation
Create a logical drive using the settings that follow.
(If a logical drive already exists, all the data stored on the logical drive will be deleted.)
RAID controller : ---
The number of the total physical devices : ---
Number of physical devices used to create the logical drive : ---
RAID level : ---
The number of the physical devices specified as the hot spare : ---
The number of the free physical devices : ---
Back
Next
Top
Default
Version 5.XX-XXX.XX

IMPORTANT: "The number of the total physical devices displays the upper limit of devices that the RAID controller can support.
The total of "The number of physical devices used to create the logical drive" and "The number of the physical devices specified as the hot spare" must not exceed "The number of the total physical devices" connected to the system.

NOTE: You can use only the physical devices that have the same model number to configure a logical drive.

8. Specify the installation medium and the Windows system partition.

The [Specify medium / Partition] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].


Parameter File Creator
NEC
EXPRESSBUILDER
Step
Load parameters
Select OS
Enter RAID settings
Specify medium / partition
Enter basic parameters
Enter network protocol
Specify the installing medium and the Windows system partition.
*** Refer to the User's guide about the Service Pack installation.
If "Use existing partitions" is selected, EXPRESSBUILDER installs the Operating System to the 1st partition.
Medium selection
Windows family/edition
Windows Server 2003 Standard Edition
English
Install the Service Pack
Keyboard layout
Default
Time zone
(GMT-08:00) Pacific Time (US and Canada); Tijuana
Windows system drive settings
Use existing partitions (only the 1st partition is formatted and its data is erased)
Create a new partition (all of the data in the disk is erased)
Use disk space as large as possible
Specify the size of the system partition
12288 (MB)
(4792MB - 999999MB) *1GB=1024MB
Back
Next
Top
Default
Version 5.XX-XXX.XX

IMPORTANT:

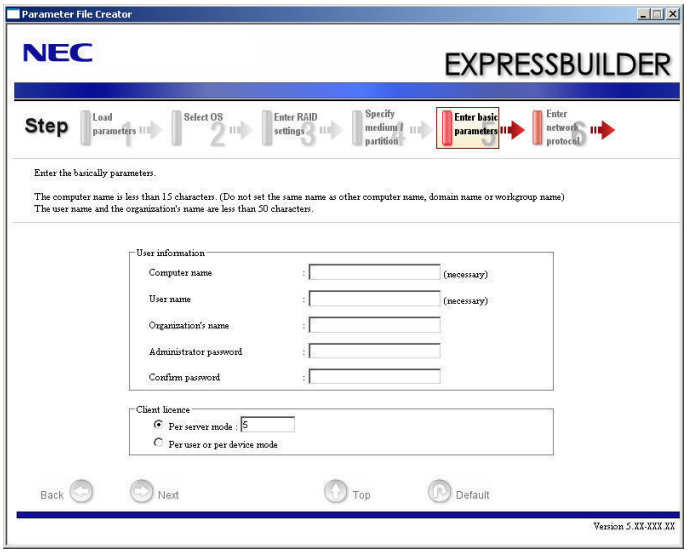
- About partition size
  - Specify a partition size larger than the required minimum size for operating system installation.
  - Do not specify a partition size larger than the capacity of the connected hard disk drive.
  - You cannot specify a partition size larger than 2,097,152MB (2TB) for a RAID system.
- If you select "Create a new partition" in "Windows system drive settings," the contents of the hard disk will be deleted.
- If "Use existing partitions" is selected, EXPRESSBUILDER installs the operating system to the first partition (the first partition is deleted). The data in the other partitions is retained if the system has two or more partitions (see the figure below):

First Partition Deleted	Second Partition Retained	Third Partition Retained

- You cannot reinstall the system if the existing partition is upgraded to a dynamic disk. Do not select "Use existing partitions" in "Windows system drive settings."

9. Enter the user information and client license mode.

The [Enter basic parameters] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].

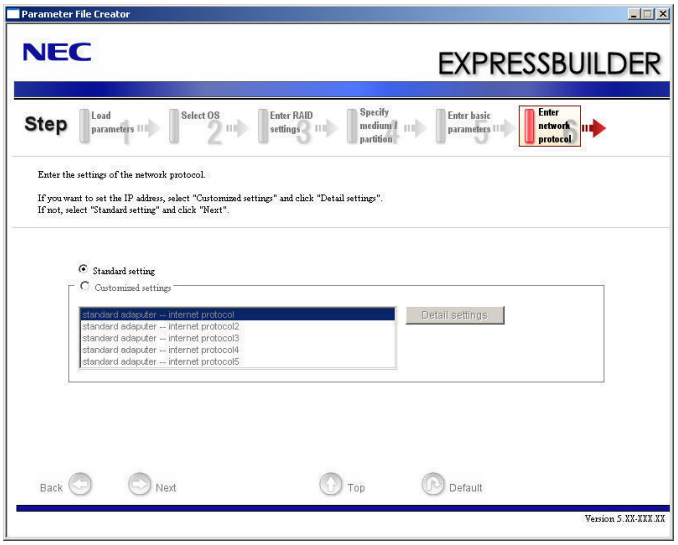


IMPORTANT: A computer and user name are required.

NOTE: Even if you do not enter an Administrator password, "●●●●●●" is displayed in "Administrator password" and "Confirm password.".

10. Enter the network protocol settings.

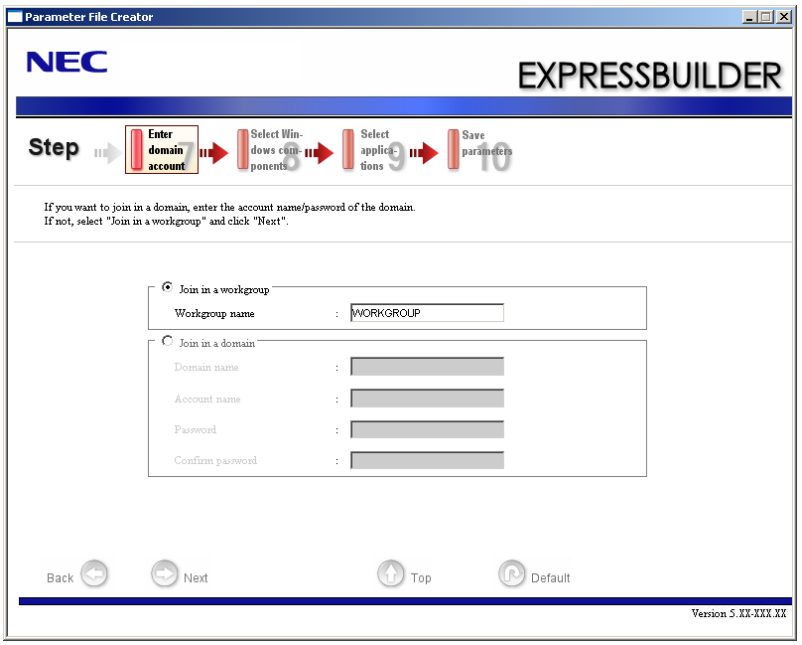
The [Enter network protocol] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



NOTE: The order of the network adapters may differ from the numbering of the LAN ports.

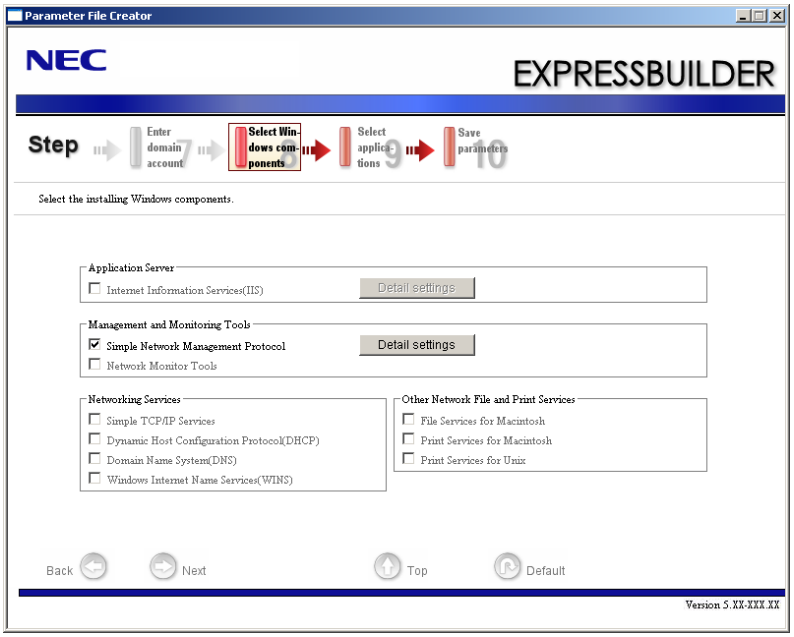
11. Enter the domain or workgroup name.

The [Enter domain account] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



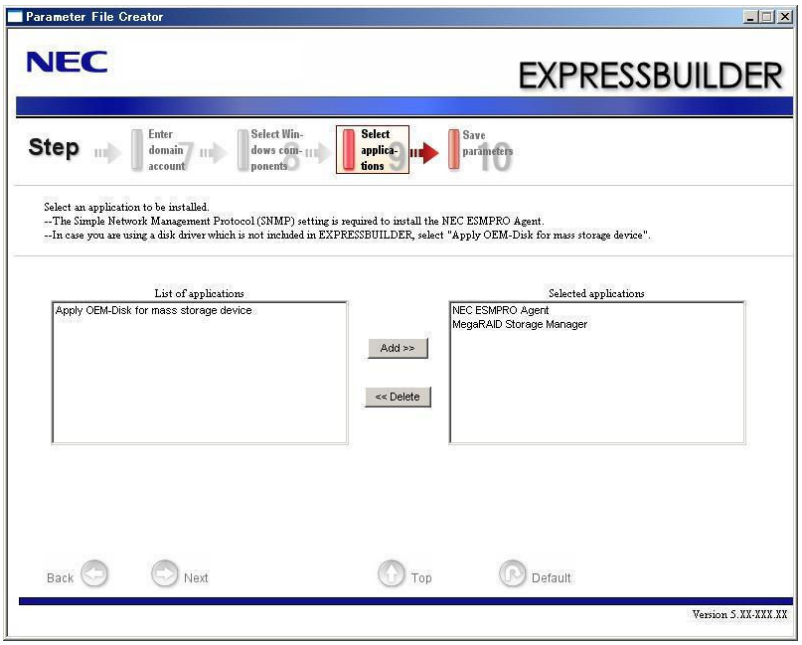
12. Select the Windows components to install.

The [Select Windows components] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next]



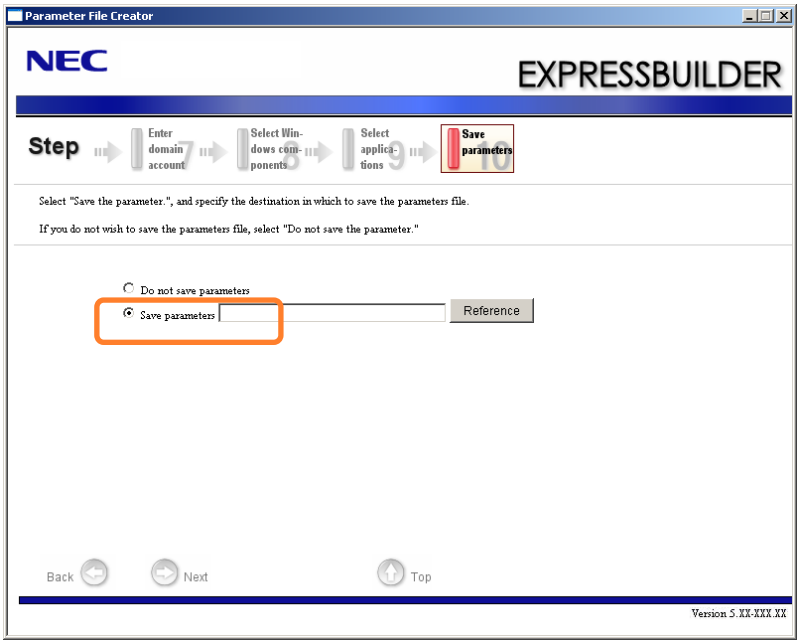
13. Select the applications to install.

The [Select applications] steps are displayed. Confirm the parameters, modify if necessary, and then click [Next].



14. Save the parameters.

The [Save parameters] steps are displayed.

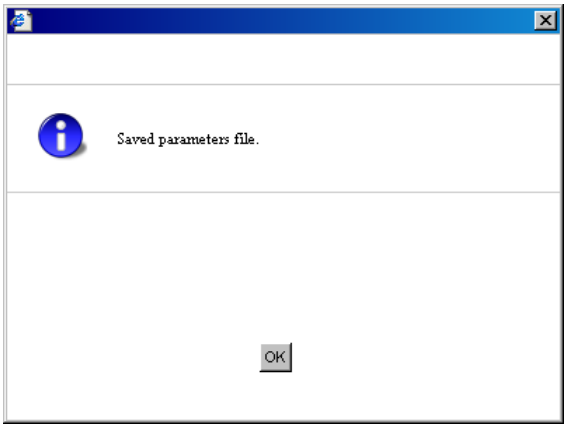


If you want to save the parameters, insert a formatted floppy disk.

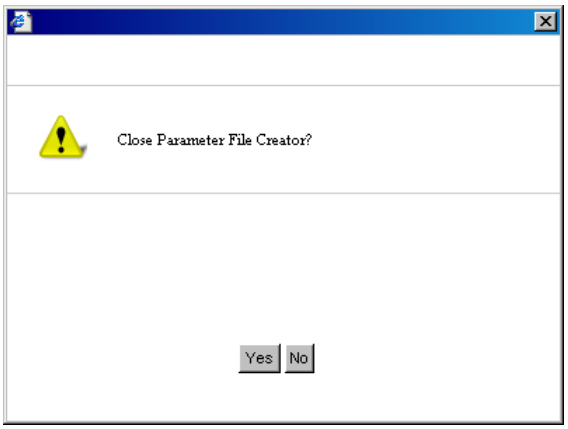
Select [Save parameters], enter the file path of the parameters file in the text box, and click [Next].

If not, select [Do not save parameters].

15. Save to a floppy disk.



The floppy disk containing the parameters file is created.



Click [Yes] to exit the Parameter File Creator.

NOTES:

- If you wish to edit an existing parameters file, click "Load Parameters" in the [Load Parameters] screen. Refer to help to edit the parameters file.
- To cancel Express Setup at any time, click in the upper-right hand corner of the screen.

NEC ESMPRO

NEC ESMPRO allows a system administrator to manage remote servers across a network. NEC ESMPRO monitors server hardware and software configurations, failures, and performance. With log data collected by NEC ESMPRO, a system administrator can track long-term and short-term performance, monitor server usage, create graphs to record trends, and check server failure rates. The administrator can use the information collected to create more efficient data routing procedures and optimize server usage.

> **IMPORTANT:** For the installation procedure and detailed information on NEC ESMPRO, refer to the online document on the NEC EXPRESSBUILDER DVD.

NEC ESMPRO offers many functions and features for managing remote servers across a network. These features help the system administrator perform daily system operation, system extension, and transfer tasks. Some features of NEC ESMPRO Manager include:

- Hardware and software server configuration
  - Hardware resources mounted in servers, such as the CPU, memory, disks, disk arrays, and LAN boards.
  - Software resources, such as operating system information and drivers running on each server.
- Server failures
  - On-screen real-time displays provide the system administrator with the failure type, location, cause, and suggested corrective action.
  - Failure data includes hardware failure information, such as system board temperature, memory failure, crashes, and software failure information.
- Performance
  - NEC ESMPRO monitors server performance and displays server usage and information, such as the rate of CPU load, memory usage, disk usage, and LAN traffic. Usage threshold values can help the system administrator monitor and prevent server overloads.

Supplement

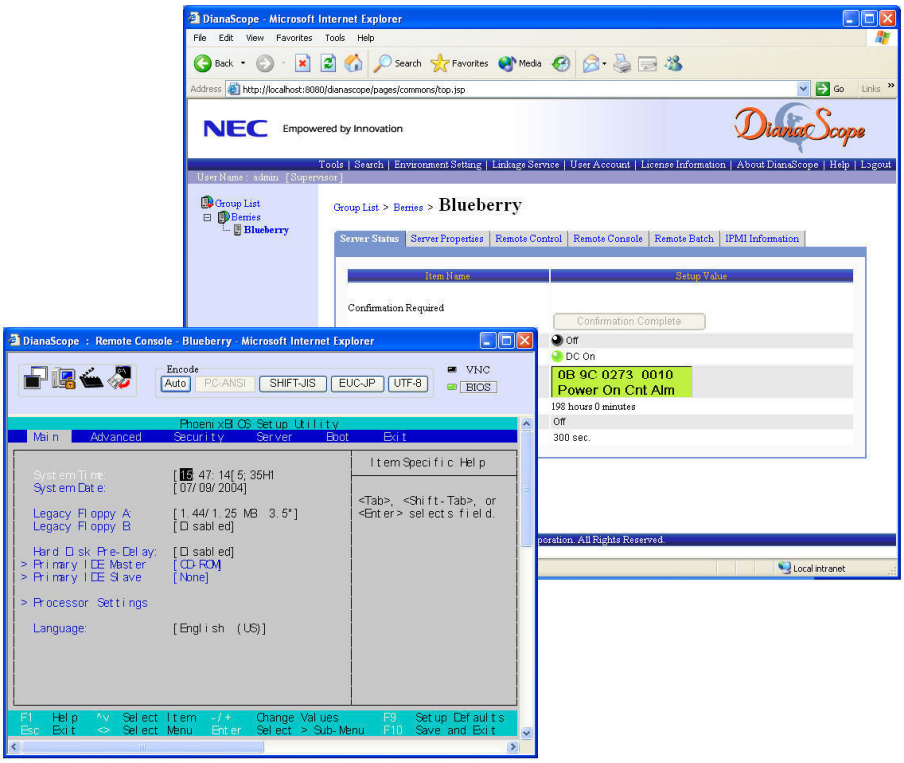
Note the following in addition to the NOTE that is described in the online document for NEC ESMPRO.

- About the Monitoring of Chassis Sensors

  The fan and power supply installed in the Blade Enclosure (SIGMABLADE) are monitored by the EM card.
  This monitoring information can be viewed in the EnclosureViewer of NEC ESMPRO Manager.
  In the [ESMPRO] - [Enclosure] - [Power Supply] tree in the DataViewer of NEC ESMPRO Manager, the status of the power supply of the CPU blade is displayed.

NEC DianaScope

NEC DianaScope is an application that provides remote management of this server. See the online documents for details on the functions and installation of NEC DianaScope.



NOTE: To manage this product using NEC DianaScope, a server license is required.
The following server license is included with the product:

- UL1198-001E DianaScope Additional Server License (1)

Chapter 7

Maintenance

This chapter describes the daily maintenance of the CPU blade and precautions when relocating or storing it.

MAKING BACKUP COPIES

NEC recommends you make backup copies of your valuable data on a regular basis. For backup storage devices suitable for the CPU blade and backup tools, consult with your service representative.

When you have changed the hardware configuration or BIOS configuration, select "System Information Management" and then "Save" in the Off-line Maintenance Utility to make a backup copy of the system information.

Also, make a backup copy of the disk array configuration data if your system has an array configuration. When your hard disk drives are rebuilt due to a failure, it is recommended to make a backup copy of the configuration data. To make a backup copy of the configuration data, refer to the manual that comes with the disk array controller.

SYSTEM DIAGNOSTICS

The system diagnostics run several tests on the CPU blade.

Select [Tool menu] - [Test and diagnostics] in NEC EXPRESSBUILDER to diagnose the system.

Test Items

The following items are tested by the system diagnostics:

- Memory
- CPU cache memory
- Hard disk drive used as the system drive

IMPORTANT: When executing the system diagnostics, make sure to disconnect the CPU blade from the network. Executing the system diagnostics with the CPU blade connected to the network may cause network instability.

NOTE: When checking the hard disk drive, no data is written to the disk.

Startup and Exit of System Diagnostics

There are two ways to diagnose the CPU blade: use the local console (keyboard) connected to the Blade Enclosure or use the management PC via serial port (remote console).

> **IMPORTANT:** The LAN and serial port connections of the remote console are mentioned in "MAINTENANCE TOOLS" of Chapter 8 "Troubleshooting."
> Use the serial port to run System Diagnostics with the remote console. The LAN connection is not for System Diagnostics.

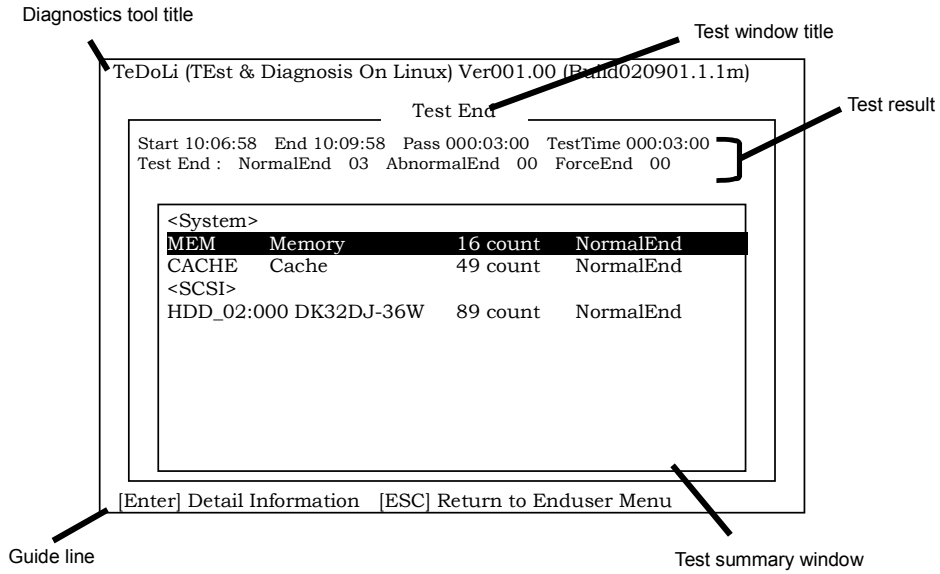
The following procedure describes how to start the system diagnostics:

1. Shutdown the operating system and power off the CPU blade.
2. Disconnect the CPU blade from the network by powering off the Switch kit to which it is connected or by disabling the LAN port of the Switch kit.
3. Power on the CPU blade.
4. Use the NEC EXPRESSBUILDER DVD to boot the system.
5. Select [Tool menu (Normal mode)] when using the local console of the CPU. Select [Tool menu (Redirection mode)] when using the remote console.

> **NOTE:** If the system displays the [Language selection] menu, select [English].

6. Select [Test and diagnostics].

Select [End-User Mode]. The system diagnostics start. The system diagnostics take approximately three minutes to complete. When they are complete, the screen displays the following:


Diagnostics tool title
Test window title
TeDoLi (TEst & Diagnosis On Linux) Ver001.00 (Build020901.1.1m)
Test End
Test result
Start 10:06:58 End 10:09:58 Pass 000:03:00 TestTime 000:03:00
Test End : NormalEnd 03 AbnormalEnd 00 ForceEnd 00
<System>
MEM Memory 16 count NormalEnd
CACHE Cache 49 count NormalEnd
<SCSI>
HDD_02:000 DK32DJ-36W 89 count NormalEnd
[Enter] Detail Information [ESC] Return to Enduser Menu
Guide line
Test summary window

– Diagnostics tool title

  Displays the name and version of the diagnostic tool.

– Test window title

  Displays the progress of the system diagnostics. "Test End" is displayed when the system diagnostics complete.

– Test result

  Displays the start, end, and elapsed time and completion status of the system diagnostics.

– Guide line

  Displays the functions of the keys to operate the system diagnostics.

– Test summary window

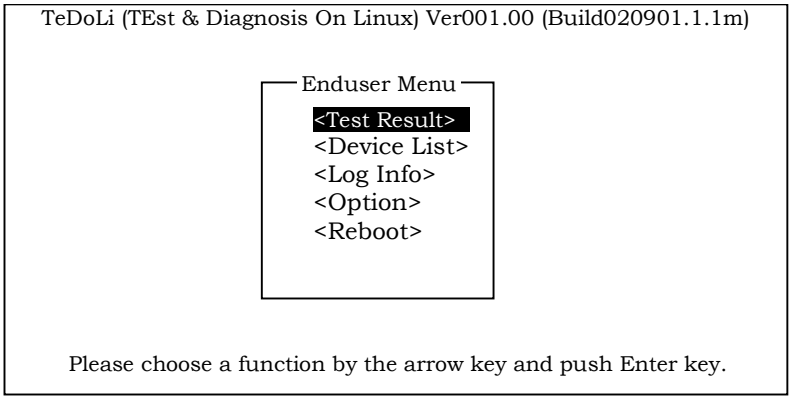
  Displays the results of each test executed. Move the cursor and press the **Enter** key to display the details of the test.

When an error is detected by the system diagnostics, a test result in the test summary window is highlighted in red and "Abnormal End" is displayed on the right side.

Move the cursor to the test that detected the error and press the **Enter** key. Record the error message and contact your service representative.

7. Press the **Esc** key.

The [Enduser Menu] below is displayed:



<Test Result> Displays the diagnostics completion screen.

<Device List> Displays a list of connected devices.

<Log Info> Displays the log information of the diagnostics.
To save the log information on a floppy disk, insert a formatted floppy disk into the floppy disk drive and select <Save(F)>.

<Option> Displays optional features.

<Reboot> Reboots the system.

8. Select <Reboot> in the [Enduser Menu].

The CPU blade restarts and the system boots from the NEC EXPRESSBUILDER DVD.

9. Exit NEC EXPRESSBUILDER and remove the DVD-ROM from the optical disc drive.

10. Power off the CPU blade.

11. Reconnect the CPU blade to the network.

12. Power on the CPU blade.

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Chapter 8

Troubleshooting

If your CPU blade does not operate as expected, read this chapter before assuming a failure.

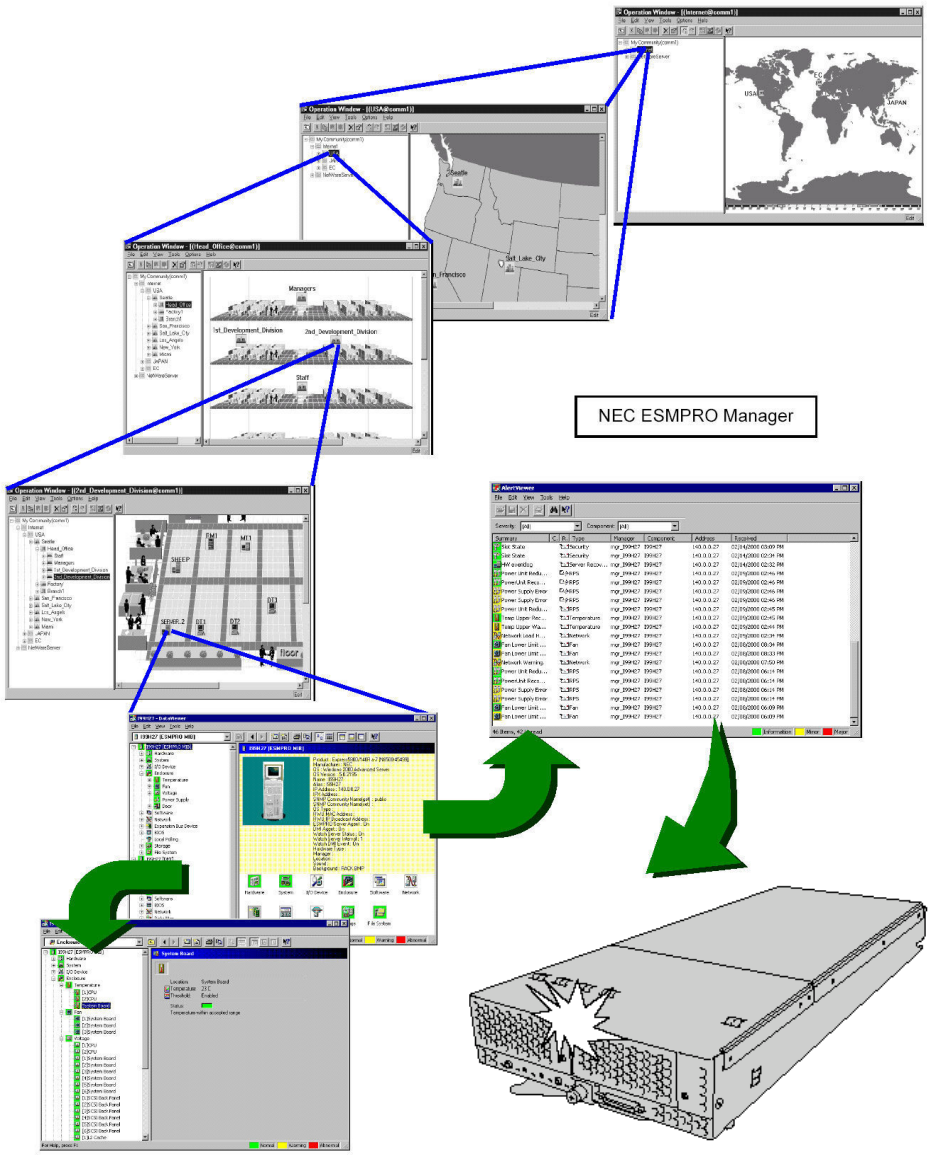
> **NOTE:** To prevent an unexpected failure, it is recommended to install NEC ESMPRO.

SYSTEM VIEWERS

You can monitor fault occurrences during system operation by using NEC ESMPRO.

If any alert is reported to NEC ESMPRO Manager, it can viewed in the Operation Window, DataViewer, or AlertViewer of NEC ESMPRO Manager.

[Example]



ERROR MESSAGES

If an error occurs on the CPU blade, an error message appears on the display unit connected to the CPU blade.

POST Error Messages

Powering on the CPU blade automatically starts the self-diagnostic program, POST (Power On Self-Test). When POST detects an error, it displays an error message on the display unit.

Follow the table below to troubleshoot such errors:

> **IMPORTANT:** Note the messages displayed before consulting with your service representative. Error messages provide useful information for maintenance.

On-screen error message		Action
0200	Failure Fixed Disk	Contact your service representative.
0230	System RAM Failed at offset	
0231	Shadow RAM Failed at offset	
0232	Extend RAM Failed at address line	
0234	Single-bit ECC error	
0235	Multiple-bit ECC error	
0250	System battery is dead Replace and run SETUP	Contact your service representative to replace the battery. Restart the system and then run the BIOS SETUP utility to correct the setting.
0251	System CMOS checksum bad Default configuration used	Default configuration is used. Restart the system and then run the BIOS SETUP utility to correct the setting.
0260	System timer error	Contact your service representative.
0270	Real timer error	
0271	Check date and time setting	Run the BIOS SETUP utility to set the date and time. If the error persists, contact your service representative.
02D0	System cache error Cache disabled	Contact your service representative.
0B1B	PCI System Error on Bus/Device/Function	
0B1C	PCI Parity Error on Bus/Device/Function	
0B28	Unsupported Processor detected on Processor 1	
0B29	Unsupported Processor detected on Processor 2	
0B50	Processor #1 with error taken offline	
0B51	Processor #2 with error taken offline	
0B5F	Forced to use Processor with error	
0B60	DIMM group #1 has been disabled	
0B61	DIMM group #2 has been disabled	

On-screen error message		Action
0B70	The error occurred during temperature sensor reading	Contact your service representative.
0B71	System Temperature out of the range	The fan may be faulty or clogged with dust. Contact your service representative for maintenance.
0B74	The error occurred during voltage sensor reading	Contact your service representative.
0B75	System Voltage out of the range	
0B78	The error occurred during fan sensor reading	
0B7C	The error occurred during redundant power module confirmation	
0B80	BMC Memory Test Failed.	Power off and reboot the CPU blade. If the error persists, contact your service representative.
0B81	BMC Firmware Code Area CRC check failed.	
0B82	BMC core hardware failure.	
0B83	BMC IBF or OBF check failed.	
0B8A	BMC SEL area full.	Run SETUP and select [Server] - [Event Log Configuration] - [Clear All Error Logs] to clear error logs.
0B8B	BMC progress check timeout	Power off and reboot the CPU blade. If the error persists, contact your service representative.
0B8C	BMC command access failed.	
0B8D	Could not redirect the console - BMC Busy -	
0B8E	Could not redirect the console - BMC Error -	
0B8F	Could not redirect the console - BMC Parameter Error -	
0B90	BMC Platform information Area Corrupted.	
0B91	BMC update firmware corrupted.	
0B92	Internal Use Area of BMC FRU corrupted	FRU command and EMP feature are unavailable. This is not a fatal error; however, power-off and reboot the CPU blade. If the error persists, contact your service representative.
0B93	BMC SDR Repository empty.	Power off and reboot the CPU blade. If the error persists, contact your service representative.
0B94	IPMB signal lines do not respond.	Access to SMC via IPMB is unavailable. This is not a fatal error; however, power-off and reboot the CPU blade. If the error persists, contact your service representative.
0B95	BMC FRU device failure.	FRU command and EMP feature are unavailable. This is not a fatal error; however, power-off and reboot the CPU blade. If the error persists, contact your service representative.

On-screen error message	Action
0B96 BMC SDR Repository failure.	Power off and reboot the CPU blade. If the error persists, contact your service representative.
0B97 BMC SEL device failure.	
0B98 BMC RAM test error	
0B99 BMC Fatal hardware error.	
0B9A Management controller not responding	
0B9B Private I2C bus not responding.	
0B9C BMC internal exception	
0B9D BMC A/D timeout error.	
0B9E SDR repository corrupt.	
0B9F SEL corrupt.	
0BB0 SMBIOS - SROM data read error.	
0BB1 SMBIOS - SROM data checksum bad.	
0BD0 1st SMBus device address not acknowledged.	
0BD1 1st SMBus device Error detected.	
0BD2 1st SMBus timeout.	
0BD3 2nd SMBus device address not acknowledged.	
0BD4 2nd SMBus device Error detected.	
0BD5 2nd SMBus timeout.	
0BD3 3rd SMBus device address not acknowledged.	
0BD4 3rd SMBus device Error detected.	
0BD5 3rd SMBus timeout.	
0BD9 4th SMBus device address not acknowledged.	
0BDA 4th SMBus device Error detected.	
0BDB 4th SMBus timeout.	
0BDC 5th SMBus device address not acknowledged.	
0BDD 5th SMBus device Error detected.	
0BDE 5th SMBus timeout.	
0BE8 IPMB device address not acknowledged.	
0BE9 IPMB device Error detected.	
0BEA IPMB timeout.	
8100 Memory decreased in Size	Contact your service representative.
Expansion Rom not initialize	Run the BIOS SETUP utility to disable the expansion ROM area and PCI slot OptionROM. If the error persists, contact your service representative.
Invalid System Configuration Data	Contact your service representative.
Resource Conflict	
System Configuration Data Read error	
System Configuration Data Write error	
WARNING: IRQ not configured	

IMPORTANT: The message "Expansion Rom not initialized" may be displayed due to insufficient expansion ROM area. Select one of the following features and set it to "Disabled:"
– Onboard LAN 1/Onboard LAN 2
– PCI slot 1

LAMPS

The CPU blade includes lamps to indicate the CPU blade status by using a variety of colors and display patterns on the front panel, hard disk drive, and power supply.

See "Indications of STATUS lamp, their meanings and actions against the indications" in Chapter 2 for details.

SOLVING PROBLEMS

When the CPU blade does not operate as expected, see the following troubleshooting information before assuming a failure.

If the CPU blade still fails to operate after following the troubleshooting information, note any error messages and contact your service representative.

CPU Blade

Fails to power-on:

- ❑ Is power supplied to the system?

  → Make sure that the power cord is connected to an AC outlet (or UPS) meeting the power standard of the Blade Enclosure.

  → Use the power cord shipped with the Blade Enclosure. In addition, make sure that the outer cover of the power cord is not broken and it is not bent at the plug.

  → Make sure that the breaker of the connected outlet is set to ON.

  → If the power cord is connected to a UPS, make sure that the power of the UPS is set to ON and power is supplied from the UPS. Refer to the manual provided with the UPS for details.

  → Make sure that the CPU blade is installed correctly.

  The CPU blade BIOS SETUP utility allows you to set the feature for power link with the UPS.

  <Menus to check: [AC-LINK] in [Server] menu>

- ❑ Does the Blade Enclosure contain the required number of power units?

  → Refer to the User's Guide of the Blade Enclosure for the required number of power units.

- ❑ Is the EM card initialized?

  → If the EM card is not initialized, the power unit does not supply power to the CPU blade.

- ❑ Does the Blade Enclosure contain the required number of fans in the proper locations?

  → Refer to the User's Guide of the Blade Enclosure for the required number of fans and their installation locations.

- ❑ Are the CPU blade (containing mezzanine card) and switch modules installed in the correct locations?

  → Refer to the User's Guide of the Blade Enclosure for the installation locations.

- ❑ Did you turn on the power of the Blade Enclosure at least 30 seconds after AC power is supplied to each power unit?

  → Initialization of BMC takes about 30 seconds after AC power is supplied to the CPU blade. After making sure that the AC power is supplied to the CPU blade (the POWER lamp lights amber), wait for 30 seconds or longer and then turn on the power of the Blade Enclosure by using the POWER switch.

- ❑ Immediately after power is supplied to the CPU blade, the CPU blade in the next slot does not power on immediately.

  → Initialization of BMC takes about 30 seconds after AC power is supplied to the CPU blade. After that, the CPU blades are powered on sequentially. A power-on delay period {(slot number - 1) × 2 seconds} is set for each CPU blade. Accordingly, a CPU blade in a high-numbered slot has a longer power-on delay.

- ❑ It occasionally takes time from the power-on operation to the CPU blade actually turning on.

  → When the power-on operation is executed, the CPU blade notifies the EM card and waits for permission to turn on. If the EM card is busy, the power-on may be delayed.

The remote power-on through network does not work (Wake On LAN does not work):

- ❑ Is the system shut down forcibly?

  → After a forced shutdown, Wake On LAN does not work. After starting the CPU blade, perform the normal shutdown procedure.

Fails to power-off:

- ❑ Is the POWER switch function disabled?

  → Restart the CPU blade and then start the BIOS SETUP utility.

  <Menus to check: [Security] – [Power Switch Inhibit]>

POST fails to complete:

- ❑ Is the memory installed properly?

  → POST does not complete if a DIMM is not installed properly.

- ❑ Are memory devices of a large capacity installed?

  → Depending on the installed memory size, it takes time to check the memory. Wait for a while.

- ❑ Are the keyboard or mouse used after starting the CPU blade?

  → If you use the keyboard or mouse after POST is started, POST may detect an error of the keyboard controller and halt. If this occurs, start POST again. After restarting POST, do not perform any operation by using the keyboard or mouse until the BIOS start message appears.

- ❑ Are memory and PCI devices that are incompatible with the CPU blade installed?

  → NEC cannot guarantee the operation of any devices other than those approved by NEC.

"System Configuration Data Read Error" appears and POST pauses:

- ❑ Did you perform any of the following operations?
  - Press the POWER switch of the CPU blade to forcibly power off the CPU blade.
  - Press the RESET switch of the CPU blade.
  - Remove the CPU blade from the Blade Enclosure.
  - Disconnect the power cord from the Blade Enclosure.

  → Contact your service representative.

The MAC address of the onboard LAN of the CPU blade is unknown:

→ You can find the MAC address on the label near the MP connector on the CPU blade. In addition, you can view the address by using a Windows or Linux command. See Chapter 3 for details.

Fails accessing internal or external devices (or such devices fail to operate):

- ❑ Are cables properly connected?

  → Make sure that the interface cables and power cord are properly connected. Also make sure that the cables are connected in the correct order.

- ❑ Is the power-on order correct?

  → When the CPU blade has any external devices connected, power on the external devices first, then the CPU blade.

- ❑ Did you install drivers for the connected optional devices?

  → Some optional devices require specific device drivers. Refer to the manual that comes with the device to install its driver.

- ❑ Is the BIOS configuration correct?

  → When the CPU blade has PCI devices connected, make sure to set the PCI device interrupt in the BIOS SETUP utility of the CPU blade. Most PCI devices do not require any configuration, but some boards do require specific settings. Refer to the manual that comes with the board for details.

  <Menus to check: [Advanced] – [PCI Device] – [PCI IRQ xx] x: PCI slot number, [Advanced] – [PCI Configuration] – [PCI Slot 1 Option ROM]>

  → Some devices connected to the serial or USB port may require I/O port address or operation mode settings. Refer to the manual that comes with the board for details.

  <Menu to check: [Advanced] – [Peripheral Configuration], [Server] – [Console Redirection]>

The keyboard or mouse fails to operate:

- ❑ Is the BIOS configuration correct?

  → The keyboard and mouse may be disabled in the BIOS SETUP utility of the CPU blade. Check the settings in the BIOS SETUP utility.

  <Menus to check: [Advanced] – [Peripheral Configuration], [Advanced] – [NumLock]>

- ❑ Did you install drivers for the keyboard and mouse?

  → Refer to the manual that comes with your operating system to check that the keyboard and mouse drivers are installed. Some operating systems allow you to change the keyboard and mouse settings. Refer to manual that comes with your operating system to check that the keyboard and mouse settings are correct.

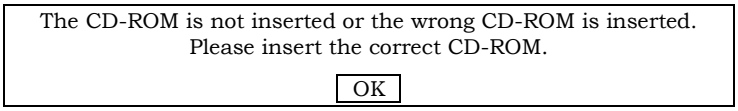
- ❑ Is the system used when Windows Server 2003 and Linux are not started?

  → Use the keyboard only when the USB floppy disk drive is not being accessed (the access lamp is off).

  – Press **F6**, **S**, and **Enter** in installation by using the Windows Setup Disk.

  – Start of ROM-DOS Startup FD for command input

Inserted the correct CD-ROM but the following message is displayed:



- ❑ Is the data side of the CD-ROM dirty or damaged?

  → Take the CD-ROM out of the DVD-ROM drive, confirm that it is not dirty or damaged, reset it, and click [OK].

Fails to access the DVD/CD-ROM:

- ❑ Is the DVD/CD-ROM properly set in the DVD-ROM drive tray?

  → Take the disc out of the tray, and set the disc with its label side upward.

- ❑ Is the DVD/CD-ROM compatible with the server?

  → A DVD/CD-ROM for Macintosh is not supported.

  → A disk which does not conform to the CD standard is not guaranteed to work in the DVD drive.

Fails to start the operating system:

- ❑ Is the BIOS configuration correct?

  → Run the BIOS SETUP utility to change the boot order (see Chapter 4).

- ❑ Is a floppy disk in the floppy disk drive?

  → Remove the floppy disk and restart the CPU blade.

- ❑ Is the operating system damaged?

  → Use the recovery process to recover the system.

The CPU blade is not found on the network:

- ❑ Is the LAN cable connected?

  → Make sure to connect the LAN cable to the network port on the rear of the CPU blade. Also make sure that the LAN cable conforms to the network interface standard.

- ❑ Is the BIOS configuration correct?

  → The internal LAN controller may be disabled in the BIOS SETUP utility of the CPU blade. Check the setting in the BIOS SETUP utility.

  <Menus to check:

  [Advanced] – [PCI Configuration] – [Embedded NIC (Dual Gbit)] – [LAN #1 Option ROM Scan], [LAN #2 Option ROM Scan]>

- ❑ Are the protocol and service configured?

  → Install the network driver for the CPU blade. Make sure that the protocol, such as TCP/IP, and services are properly configured.

- ❑ Is the transfer speed correct?

  → Open the adapter properties dialog box in the Control Panel to specify the "Link Speed & Duplex" values that are the same as the values specified for the hub.

Problems with Windows

There are some cases where the following event log is registered when you install Windows Server 2003 x64 Editions:

Source: DCOM

Category: Error

Event ID: 10016

Description: The application-specific permission settings do not grant Local Activation permission for the COM server application with CLSID {555F3418-D99E-4E51-800A-6E89CFD8B1D7} to the user{NT AUTHORITY\LOCAL SERVICE} SID {S-1-5-19}.

This security permission can be modified by using the Services administrative tool.

→ It is not a problem for normal system operation.

There are some cases where the following event log is registered when you install Windows Server 2003 x64 Editions:

Event Source: Service Control Manager

Event Type: Error

Event ID: 7011

Description: Timeout (30000 milliseconds) waiting for a transaction response from the IMAP4Svc service.

→ If this event does not register after rebooting the system, it is not a problem for normal system operation.

There are some cases where the following event log is registered when you use Windows Server 2003 R2:

Source: IPMIDRV

Type: Error

Event ID: 1001

Description: The IPMI device driver attempted to determine if the system supported an IPMI BMC device. The driver attempted to detect the presence of the IPMI BMC by searching the SMBIOS for Type 38 record. But either no record was found or the record was not compatible with the version of the device driver. If a SMBIOS Type 38 record was detected, the Dump Data field of the event contains a binary representation of the record.

→ If you use "Hardware Management" provided by Windows Server 2003 R2, the event log above will be registered.

For more details, refer to "Enabling Microsoft Windows Server 2003 R2 Hardware Management" on the following site:

[NEC Express5800 Web Site]
http://www.nec.co.jp/express/download/W2K3_R2

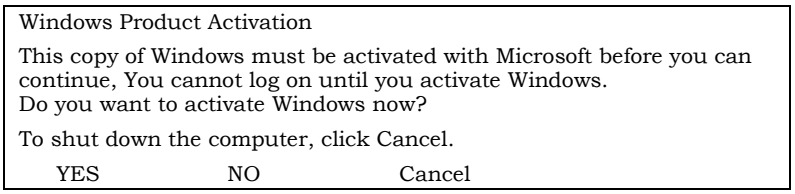
Cannot install the operating system correctly:

- ❑ Did you read the notes on installing the operating system?

  → See Chapter 5.

The system displays the message below and fails to log in:

→ In Windows Server 2003, the following message will be displayed if you fail to activate the operating system within the specified time period.
Select "Yes" to activate the operating system.


Windows Product Activation
This copy of Windows must be activated with Microsoft before you can continue, You cannot log on until you activate Windows.
Do you want to activate Windows now?
To shut down the computer, click Cancel.
YES
NO
Cancel

The Telnet Service is not installed:

Adjust the computer name to 14 characters or less before installing the telnet service.

<How to install the Telnet Service>

1. Click [Run] on the Start menu.
2. Type "tlntsvr /service" in the [Open] box and click [OK].
3. Click the Start menu, click [Control Panel], click [Computer Management], and then click [Services] to check that the telnet service is registered.

   * When the installation of Telnet Service is finished, adjust the computer name to 15 characters or more.

Fails to start the operating system with the /3GB switch:

→ System fails to start the operating system with the /3GB switch.

In this case, adjust the capacity of the user mode area using the /userva switch by referring to the following URL:

http://support.microsoft.com/kb/316739/en

Problems with NEC EXPRESSBUILDER

When the CPU blade will not boot from the NEC EXPRESSBUILDER DVD, check the following:

- ❑ Did you insert the NEC EXPRESSBUILDER DVD during POST and restart the CPU blade?

  → If you do not insert the NEC EXPRESSBUILDER DVD during POST and restart the CPU blade, an error message will appear or the operating system will boot.

- ❑ Is the BIOS configuration correct?

  → The boot device order may be specified in the BIOS setup utility of the CPU blade. Use the BIOS setup utility to change the boot device order to boot the system from the DVD-ROM drive first.

  <Menu to check: [Boot]>

If [OS installation ***default*] is selected at BOOT Selection screen, the following message is displayed.**

After this message appears, check the error and take the appropriate corrective action according to the message listed in the table below.

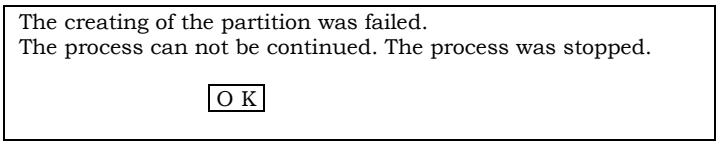
Message	Cause
This EXPRESSBUILDER version was not designed for this computer. Insert the correct version and click [OK]. When you click [OK], the computer reboots.	This NEC EXPRESSBUILDER version is not designed for this server. Execute the NEC EXPRESSBUILDER on a compliant server.
EXPRESSBUILDER could not get the hardware parameters written in this motherboard. This version is not designed for this computer or the motherboard may be broken. When you click [OK], the computer reboots.	This message is shown when NEC EXPRESSBUILDER could not find system-specific information because of motherboard damage or replacement.
The hardware parameters written in this motherboard are incorrect. This version is not designed for this computer or the motherboard may be broken. When this error occurs after replacing the motherboard, configure the hardware information in the Maintenance Utility.	

Problems with Express Setup

The system partition size issmaller than the specified value:

→ In Express Setup, there are some cases where the system partition size is c about 8MB smaller than the specified size.
It is not a problem for normal system operation.

The following message appears when you try to specify a partition size larger than the capacity of the hard disk drive:



→ Cannot continue setup.

Specify a partition size smaller than the capacity of the hard disk drive and retry setup.

Specified to join the Domain, but the system is installed as Workgroup:

→ When the setup fails to join the domain during the installation, it will install the system as Workgroup. Open [System] in Control Panel to join the domain.

Unable to configure the Network adapter:

→ In Express Setup, you cannot configure the Network adapter. Configure it in the Control Panel after starting Windows.

Problems with Parameter File Creator

Fails to start Parameter File Creator:

- Parameter File Creator requires "Microsoft(R) HTML Application host" to run.

  → Parameter File Creator must be executed by “Microsoft® HTML Application host.” If this does not launch, follow the procedure below to associate Parameter File Creator with “Microsoft® HTML Application host:”

  1) Click [Run] on the Start menu.
  2) Type "%windir%\system32\mshta.exe /register" in the [Open] box and click [OK].

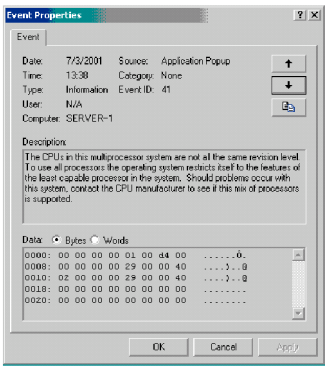
COLLECTING EVENT LOG

This section describes how to collect the event logs of the CPU blade.

IMPORTANT:

- If a STOP error, system error, or stall occurs, follow the procedure below after restarting the system.
- Restarting the system due to an error may display a message indicating insufficient virtual memory. Ignore this message and proceed. Restarting the system may result in dumping improper data.

NOTE: If two CPU's with different revision levels are installed on the server, the following message may appear in the System Log of the Event Viewer. However, it is not a problem for normal system operation:


Event Properties
Event
Date: 7/3/2001
Source: Application Popup
Time: 13:38
Category: None
Type: Information
Event ID: 41
User: N/A
Computer: SERVER-1
Description:
The CPUs in this multiprocessor system are not all the same revision level. To use all processors the operating system restricts itself to the features of the least capable processor in the system. Should problems occur with this system, contact the CPU manufacturer to see if this mix of processors is supported.
Data: Bytes Words
0000: 00 00 00 00 01 00 d4 00 ....Ô.
0008: 00 00 00 00 29 00 00 40 ....)..@
0010: 02 00 00 00 29 00 00 40 ....)..@
0018: 00 00 00 00 00 00 00 00 ....
0020: 00 00 00 00 00 00 00 00 ....
OK
Cancel
Apply

1. Click [Management Tool] – [Event Viewer] in the Control Panel.
2. Select the the log type to collect.

   [Application Log] collects events related to the installed applications. [Security Log] collects the events related to security. [System Log] collects the events related to the Windows system.
3. Click [Save as...] in the [Run] menu.
4. Enter the file name of the log in the [File Name] box.
5. Select the type of the log file you want to save in the [File Type] list box and click [OK].

For more information, refer to Windows Online Help.

COLLECTING CONFIGURATION INFORMATION

This section describes how to collect the hardware configuration information.

"Diagnostic Program" is used to collect the information.

> **IMPORTANT:** If a STOP error, system error, or stall occurs, follow the procedure below after restarting the system.

1. Click the Start menu and click [Control Panel].
2. Double-click [Management Tool] and double-click [Computer Management].
3. Click [System Tool] – [System Information].
4. Click [Save as System Information File] in the [Operation] menu.
5. Enter the file name in the [File Name] box.
6. Click [Save].

COLLECTING DR. WATSON DIAGNOSTIC INFORMATION

Dr. Watson collects diagnostic information related to application errors. You can specify the location to save the information. For more information, refer to Chapter 5.

MEMORY DUMP

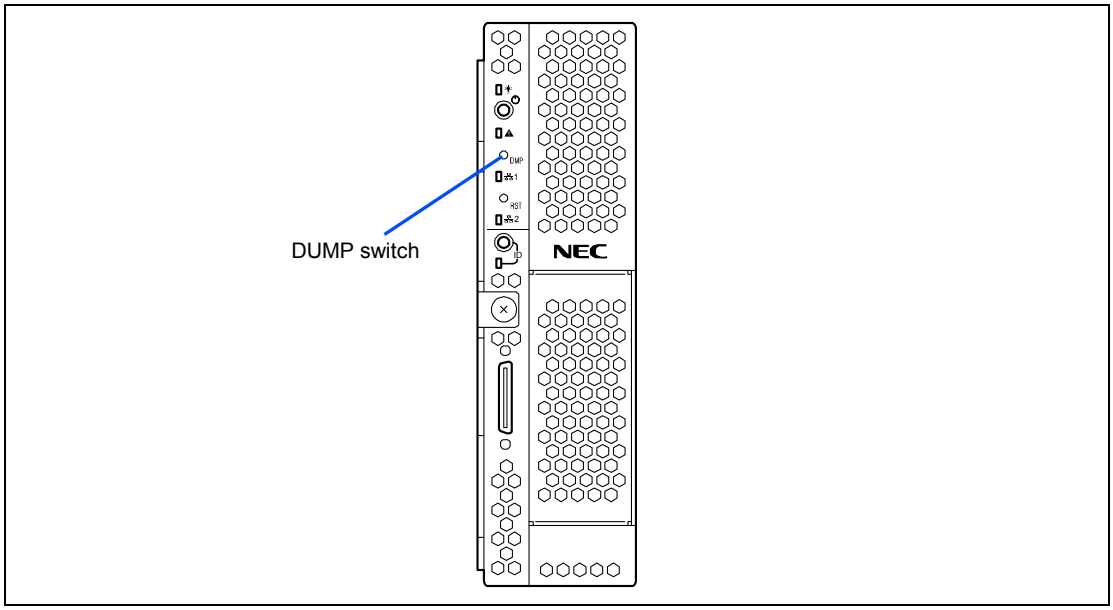
If an error occurs, the dump file should be saved to acquire necessary information.

If you save the dump file to DAT, write that it is saved as "NTBackup" or "ARCServe" on the label. You can specify the location to save the diagnostic information. For more information, see Chapter 5.

IMPORTANT:

- Consult with your service representative before dumping the memory. Dumping the memory while the CPU blade is operating normally may affect the system operation.
- Restarting the system due to an error may display a message indicating insufficient virtual memory. Ignore this message and proceed. Restarting the system may result in dumping improper data.
- Dumping memory is not available in the Linux operating system.

Press the DUMP switch to save the dump file when an error occurs. Insert a metal pin (a straightened large paper clip may be used) into the switch hole to press the DUMP switch.



Pressing the DUMP switch saves the dump file in the specified directory (memory dumping may not be available when the CPU stalls).

RECOVERY FOR Windows SYSTEM

If any file necessary for running the operating system is damaged, use the following procedures to recover the system.

IMPORTANT:

- Make sure that the keyboard, display unit, DVD-ROM drive, and floppy disk drive are connected to the CPU blade.
- After recovering the system, see "Updating the System" in Chapter 5 to update the system.
  Also, you need to update all the drivers after the system update. For more information, see "Installing and Setting Device Drivers" in Chapter 5.
- Use the keyboard only when the USB floppy disk drive is not being accessed (the access lamp is being off).

For Windows Server 2003 x64 Editions

If the system fails to start for some reason, repair the system using the recovery console. Note that this method is recommended only for users and administrators who have a thorough knowledge of the recovery console.

For more information, refer to Online Help.

For Windows Server 2003

If the system fails to start for some reason, repair the system using the recovery console. Note that this method is recommended only for users and administrators who have a thorough knowledge of the recovery console.

For more information, refer to Online Help.

MAINTENANCE TOOLS

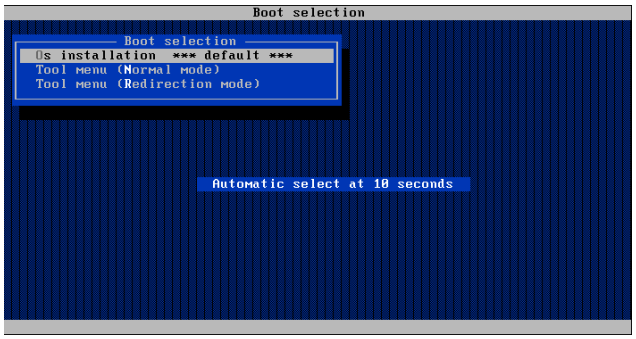
Maintenance Tools prevent and analyze system errors.

Starting Maintenance Tools

Start the Maintenance Tools according to the following procedure:

1. Turn on the peripheral devices and then the server.
2. Insert the NEC EXPRESSBUILDER DVD into the optical disc drive.
3. Press **Ctrl**, **Alt**, and **Delete** to reboot the server.

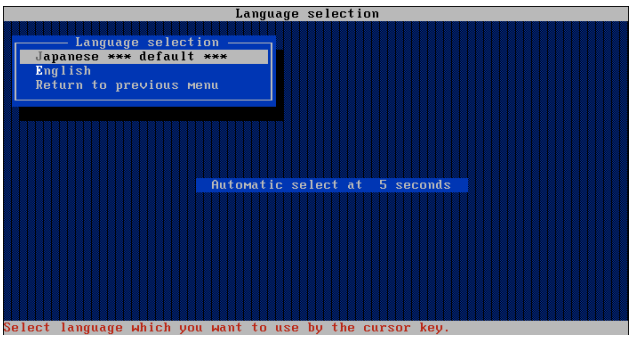
   The Boot Selection menu is displayed.



IMPORTANT: "Os installation" is selected automatically in ten seconds after the Boot Selection menu is displayed.

4. When a local console is used, select "Tool menu (Normal mode)."

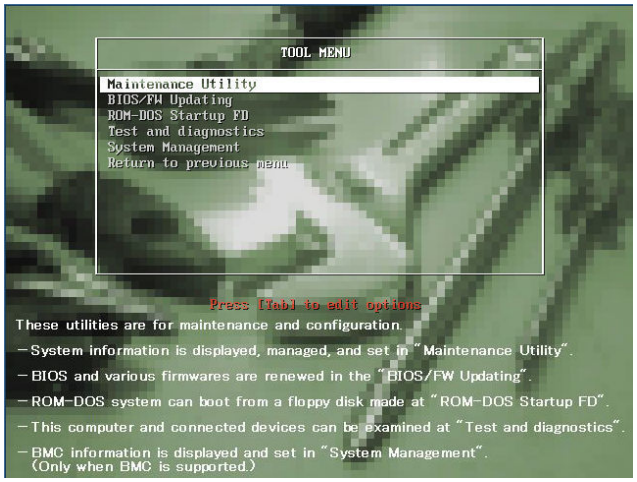
   When a remote console is used, select "Tool menu (Redirection mode)."


Language selection
Language selection
Japanese *** default ***
English
Return to previous menu
Automatic select at 5 seconds
Select language which you want to use by the cursor key.

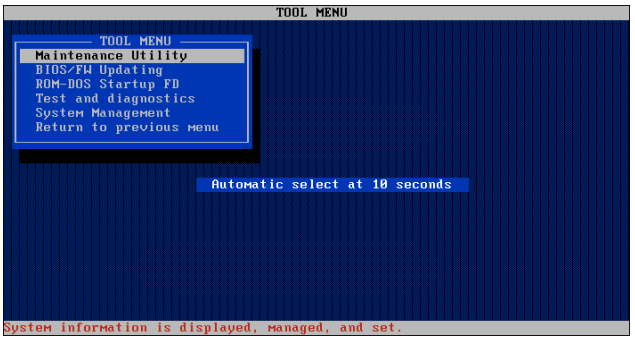
IMPORTANT: "Japanese" is selected automatically in five seconds after the Language Selection menu is displayed.

5. Select "English."

The tool menu is displayed.


TOOL MENU
Maintenance Utility
BIOS/FW Updating
ROM-DOS Startup FD
Test and diagnostics
System Management
Return to previous menu
Press [Tab] to edit options
These utilities are for maintenance and configuration.
－System information is displayed, managed, and set in "Maintenance Utility".
－BIOS and various firmwares are renewed in the "BIOS/FW Updating".
－ROM-DOS system can boot from a floppy disk made at "ROM-DOS Startup FD".
－This computer and connected devices can be examined at "Test and diagnostics".
－BMC information is displayed and set in "System Management".
(Only when BMC is supported.)

When you use a local console



When you use a remote console

6. Select a tool to start it.

Function of Maintenance Tools

The following functions are provided by the Maintenance Tools:

- Maintenance Utility

  The Off-line Maintenance Utility is started in Maintenance Utility. The Off-line Maintenance Utility is an operating system independent maintenance program. When you are unable to start the operating system dependent NEC ESMPRO to troubleshoot a problem, the Off-line Maintenance Utility can be used.

  IMPORTANT:

  - The Off-line Maintenance Utility is intended for use by your service representative. Do not attempt to use the utility by yourself. Contact your service representative.
  - See the online help for details on the Off-line Maintenance Utility. For further information, contact your service representative.

  The Off-line Maintenance Utility provides the following features:

  – IPMI Information Viewer

    Provides functions to view the system event log (SEL), sensor data record (SDR), and filed replaceable unit (FRU), and to make a backup copy of them.

    Using this feature, you can find system errors and events to determine a maintenance part.

  – BIOS Setup Viewer

    Provides functions to export the current configuration data defined with the SETUP utility to a text file.

  – System Information Viewer

    Provides functions to view information on the processor and BIOS and export it to a text file.

  – System Information Management

    Provides functions to make a back-up copy of your data.

    Without the backup data, the system-specific information and/or configuration may not be restored.

    Only authorized personnel are allowed to restore the backup data.

  – System Management

    The parameters of BMC (Baseboard Management Controller) are set for remote control and alert.

- BIOS/FW Updating

  This menu allows you to update the BIOS and firmware of the server by using an update disk (3.5-inch floppy disk) that is distributed by a NEC customer service representative.

  After rebooting the system, an update program is started automatically from the floppy disk, and the various BIOS and firmware programs are updated.

  IMPORTANT: Do not turn off the server while the update program is running. If the update process is cancelled, the system may not be able to start.

- ROM-DOS startup FD

  Creates a support disk for starting the ROM-DOS system.

- Test and diagnostics

  Execute various tests on the server to check if the server functions are normal and if the connection between the server and an additional optional board is normal.

  After the diagnostics are executed, a system check program assigned to each model starts. See Chapter 7 for details.

- System Management

  The parameters of BMC (Baseboard Management Controller) are set for remote control and alert.

  This menu's function is the same as the "System Management" of the "Maintenance Utility."

Maintenance Tools with Remote Console

This section describes the procedures for using the Maintenance Tools with a remote console.

The Maintenance Tools contain a remote console feature that allows the system administrator to set up the server from a management workstation (management PC) via the network or the server's COM B (serial) port.

IMPORTANT:

- Do not use this feature on any computer other than the server, or on any other server without NEC EXPRESSBUILDER. Doing so may cause a failure of the server.
- Be sure to select [Tool menu (Redirection mode)] in the [Boot Selection] menu from the remote console.

Starting

The following two methods are available to start the server:

- Running the Maintenance Tools from the management PC via LAN.
- Running the Maintenance Tools from the management PC via direct connection (COM B).

For the procedure for starting the Maintenance Tools with a remote console, refer to the online documentation for NEC DianaScope.

IMPORTANT:

- Do not change the boot device order in the BOOT menu in the BIOS. NEC EXPRESSBUILDER cannot be used if the DVD-ROM drive is not the first boot device.
- Use the standard LAN port for LAN connection.
- Use the serial port B for direct connection.
- To use this feature, you need to create a configuration file that includes the communication method between the server and the management PC and various setup parameters. Use NEC DianaScope or run "System Management" from NEC EXPRESSBUILDER to create a configuration file. Save the configuration file to a floppy disk with the following file name:

  – File name: CSL_LESS.cfg
- If you exit the BIOS by forced power-off or reset, the redirection process may fail. In this case, set it up again by using the configuration file.

NOTE: The following BIOS settings will be set as shown below:

- LAN Controller: [Enabled]
- Serial Port A: [Enabled]
  Base I/O Address: [3F8]
  Interrupt: [IRQ 4]
- Serial Port B: [Enabled]
  Base I/O Address: [2F8]
  Interrupt: [IRQ 3]
- BIOS Redirection Port: [Serial Port B]
- Baud Rate: [19.2K]
- Flow Control: [CTS/RTS]
- Console Type: [PC ANSI]

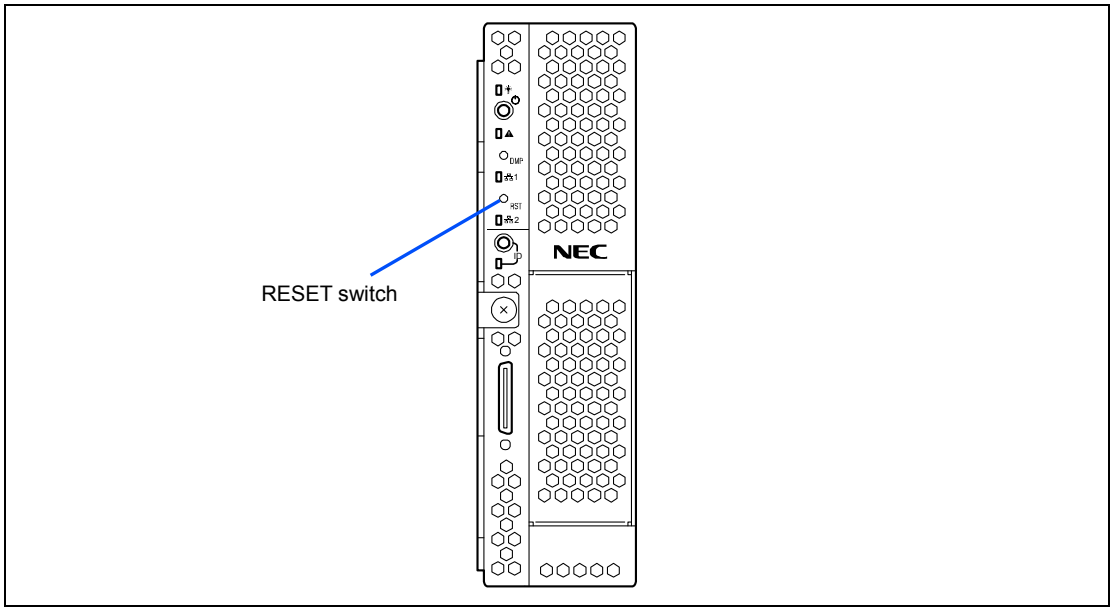
RESETTING THE CPU BLADE

This section describes how to reset the CPU blade when the CPU blade halts or when you want to restore the factory-set BIOS configuration.

> **IMPORTANT:** Resetting the CPU blade results in data loss if the operating system is running. Make sure all data is saved to disk before resetting the CPU blade.

- Hardware reset

  Press the RESET switch on the CPU blade. This restarts the CPU blade.



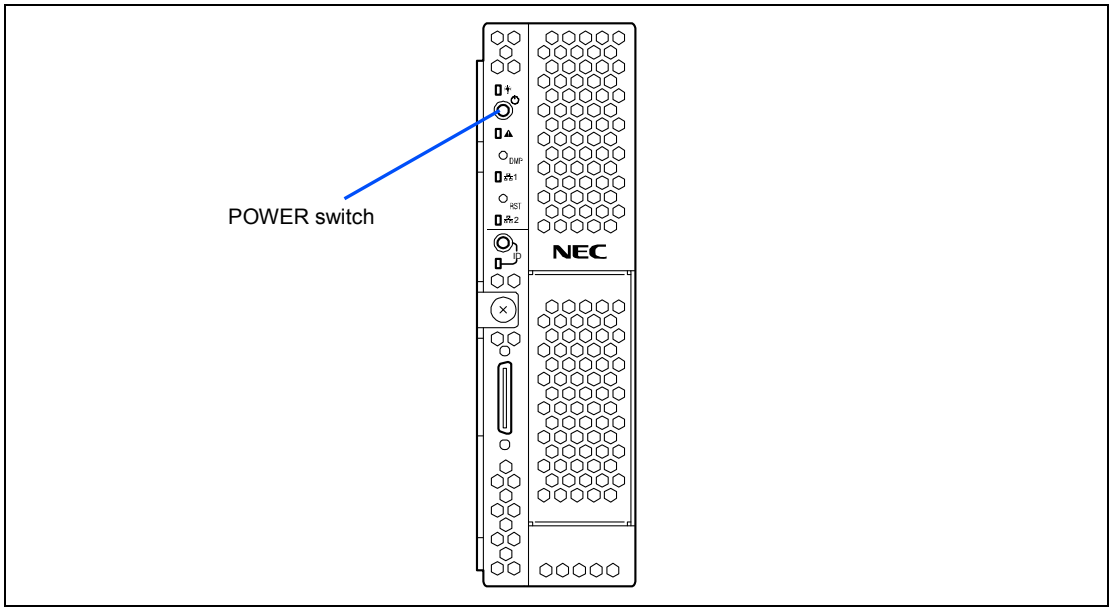
- Software reset

  If the CPU blade halts before starting the operating system, press and hold **Ctrl** and **Alt** and press **Delete**. This restarts the CPU blade.

FORCED SHUTDOWN

Use this function when an OS command does not shut down the CPU blade, the POWER switch does not turn off the CPU blade, or resetting does not work.

Press and hold the POWER switch on the CPU blade for at least four seconds. The power is forcibly turned off. To turn on the power again, wait approximately 10 seconds after turning off the power.



IMPORTANT: If the remote power-on function is used, cycle the power once to load the OS, and turn off the power again in the normal way.

Chapter 9

Upgrading Your Server

This chapter describes optional devices available for the CPU blade, procedures to install or removing them, and notes on their use.

IMPORTANT:

- Optional devices described in this chapter may be installed or removed by anyone. However, NEC does not assume any liability for damage to the optional devices or the server resulting from their installation or use. NEC recommends you ask your service representative to install or remove any optional devices.
- Make sure to use only optional devices and cables authorized by NEC. Repair costs of the server due to damage resulting from installation of such devices or cables will be charged even within the warranty period.
- When you make any change to the hardware configuration, make sure to update the system (see Chapter 5 for details).

SAFETY NOTES

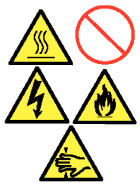
Observe the following notes to install or remove optional devices safely:

⚠ WARNING

Observe the following instructions to use the server safely. Failure to follow these instructions may result in death or serious personal injury. See pages 1-2 to 1-5 for details.

- Do not disassemble, repair, or alter the server.
- Do not remove the lithium, nickel cadmium, or nickel hydrogen battery.
- Do not handle the CPU blade with the power cord plugged into a power source.

⚠ CAUTION



Observe the following instructions to use the server safely. Failure to follow these instructions may cause a fire, personal injury, or property damage. See pages 1-2 to 1-5 for details.

- Make sure to complete device installation.
- Do not install the device with its cover removed.
- Do not pinch your finger(s) in components.
- Avoid installation in extreme temperature conditions.

ANTI-STATIC MEASURES

The CPU blade contains electronic components sensitive to static electricity. Avoid damage caused by static electricity when installing or removing any optional devices.

- Wear a wrist strap (an arm belt or anti-static glove).

  Wear a wrist strap on your wrist. If no wrist strap is available, touch an unpainted metal part of the case before touching a component to discharge static electricity from your body.

  Touch a metal part regularly when working with components to discharge static electricity.

- Select a suitable workspace.
  - Work with the CPU blade on an anti-static or concrete floor.
  - When you work with the CPU blade on a carpet where static electricity is likely to be generated, make sure to take anti-static measures beforehand.

- Use a worktable.

  Place the CPU blade on an anti-static mat to work with it.

- Cloth
  - Do not wear wool or synthetic clothing to work with the CPU blade.
  - Wear anti-static shoes to work with the CPU blade.
  - Take off any jewelry (ring, bracelet, wrist watch, etc.) before working with the CPU blade.

- Handling of components
  - Keep a component in an anti-static bag until you are ready to install it in the CPU blade.
  - Hold a component by its edges to avoid touching any terminals or parts.
  - To store or carry a component, place it in an anti-static bag.

PREPARATION FOR INSTALLATION

To install or remove an optional device in the CPU blade, you should first remove the CPU blade from the Blade Enclosure.

IMPORTANT: Remove the target CPU blade only. Do not remove any other blank covers or CPU blades from other slots. Be sure to install or remove the CPU blade carefully.

INSTALLATION/REMOVAL PROCEDURE

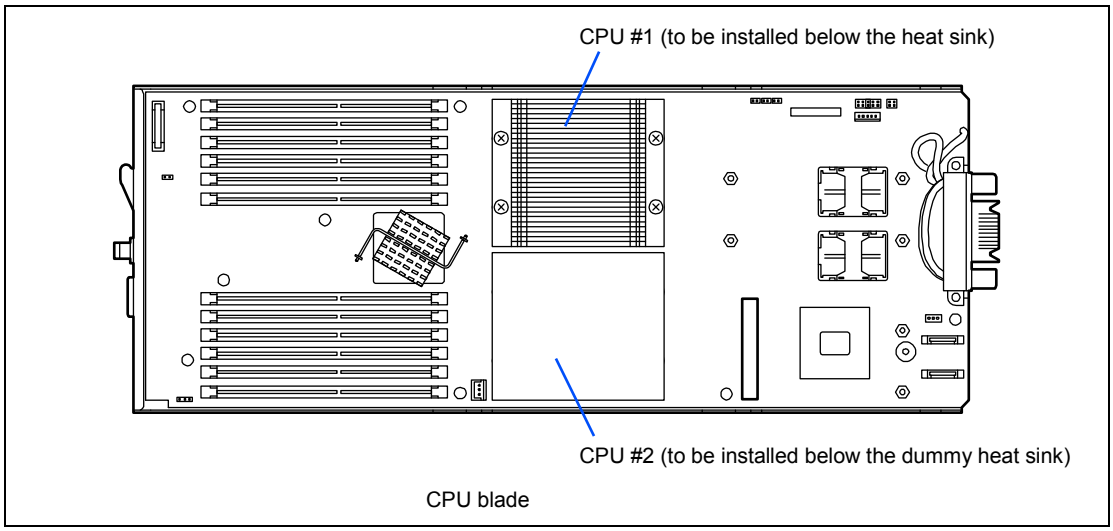
Install or remove optional devices in the following procedures:

Processor (CPU)

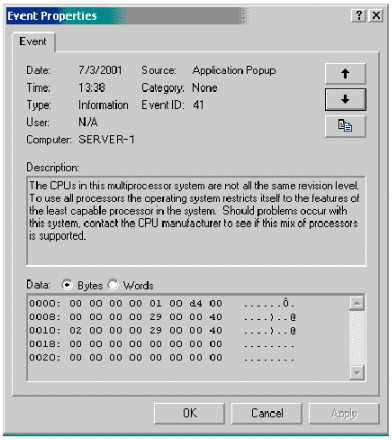
The server may have another CPU installed in addition to the factory-installed CPU (Dual-Core Intel Xeon Processor or Quad-Core Intel Xeon Processor).

IMPORTANT:

- The second CPU must have the same specifications (core voltage, clock, etc.) as the factory-installed CPU.
- The CPU is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the CPU. Do not touch the CPU pins with your bare hands or place the CPU directly on a desk. For static notes, see the section "Anti-static Measures" described earlier.
- Do not operate the system until confirming that the second CPU is in the normal state.
- Make sure to use a CPU authorized by NEC. Installing a third-party CPU may cause a failure of the CPU as well as the server. Repair costs of the server due to damage resulting from installation of such a CPU will be charged even within the warranty period.



NOTE: If two CPU's with different revision levels are installed on the server, the following message may appear in the System Log of the Event Viewer. However, it is not a problem for normal system operation:

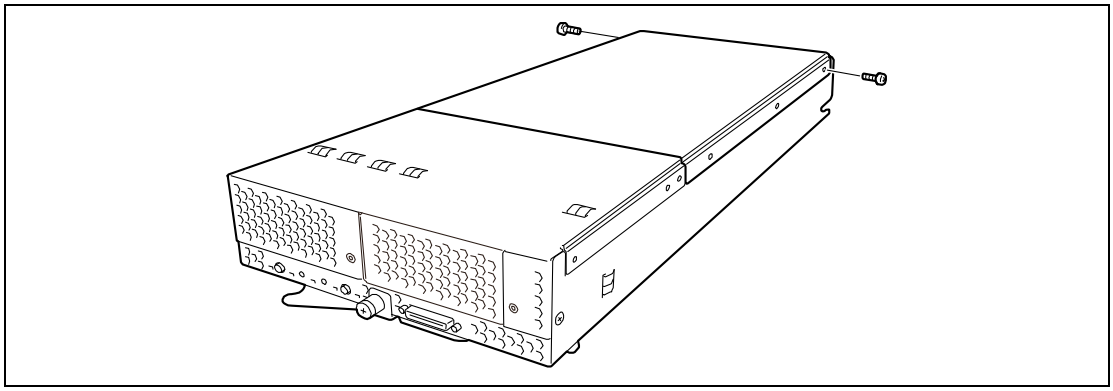

Event Properties
Event
Date: 7/3/2001 Source: Application Popup
Time: 13:38 Category: None
Type: Information Event ID: 41
User: N/A
Computer: SERVER-1
Description:
The CPUs in this multiprocessor system are not all the same revision level. To use all processors the operating system restricts itself to the features of the least capable processor in the system. Should problems occur with this system, contact the CPU manufacturer to see if this mix of processors is supported.
Data: Bytes Words
0000: 00 00 00 00 01 00 d4 00 ......Ô.
0008: 00 00 00 00 29 00 00 40 ....)..@
0010: 02 00 00 00 29 00 00 40 ....)..@
0018: 00 00 00 00 00 00 00 00 ....
0020: 00 00 00 00 00 00 00 00 ....
OK
Cancel
Apply

Installation

Install the CPU in the following procedure:

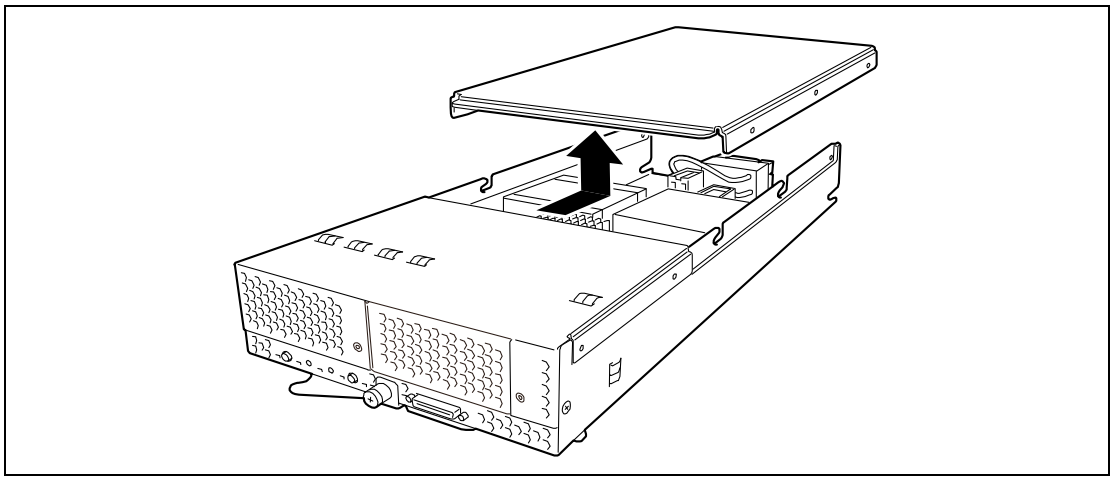
1. Shutdown the CPU blade and turn off the power.
2. Remove the CPU blade from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on an anti-static sheet.
4. Remove the two screws securing the rear cover.



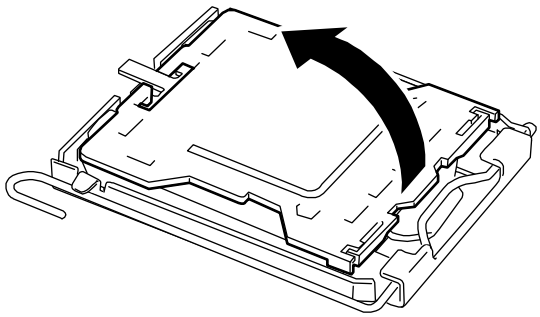
5. Firmly hold the cover, move it slightly toward the rear of the CPU blade, and then lift the cover to remove it.

IMPORTANT: Handle the cover carefully so as not to make contact with any electronic devices on the CPU blade.



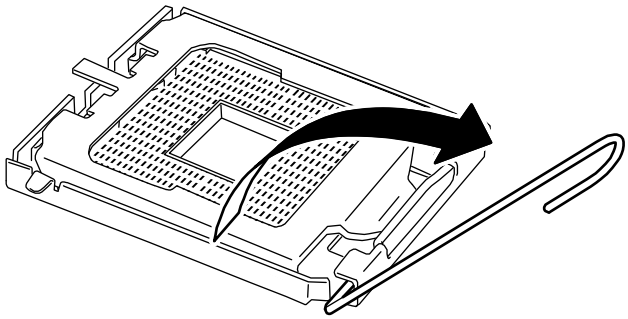
6. Confirm the location of the CPU socket.
7. Remove the dummy heat sink and CPU cover from the socket.

IMPORTANT: Keep the CPU cover for future use.

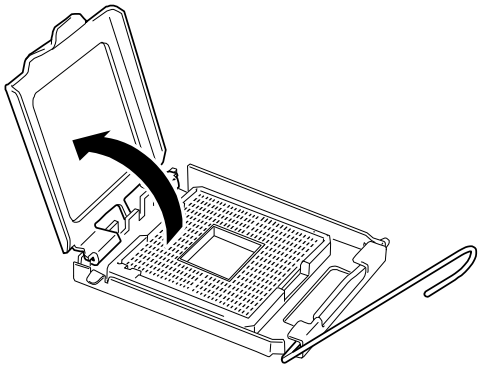


8. Lift the socket lever.

IMPORTANT: Open the lever fully. It can be opened 120 degrees or more.

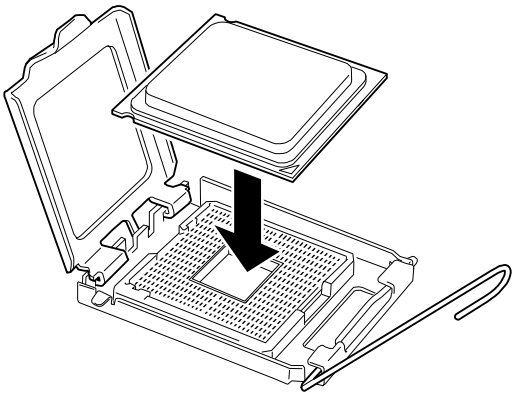


9. Lift the CPU socket holder.

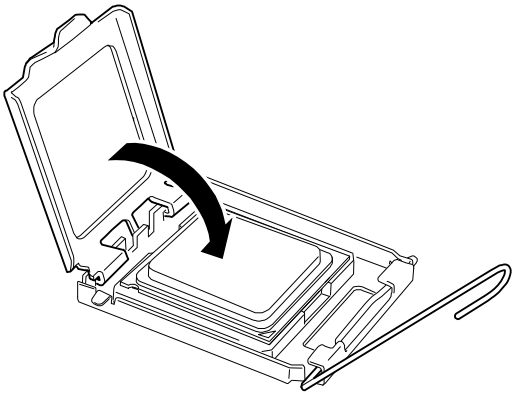


10. Place the CPU in the socket carefully.

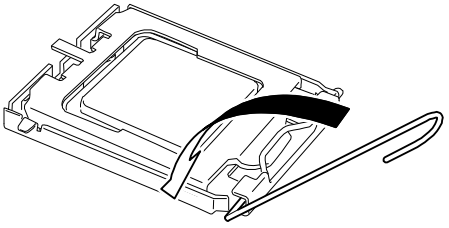
> **NOTE:** Note the direction of the CPU. To prevent the CPU from being inserted into the socket incorrectly, a pin mark is placed on the CPU and the socket. Check the pin marks to insert the CPU into the socket correctly.



11. Push the CPU lightly into the socket, and push down the CPU socket holder.



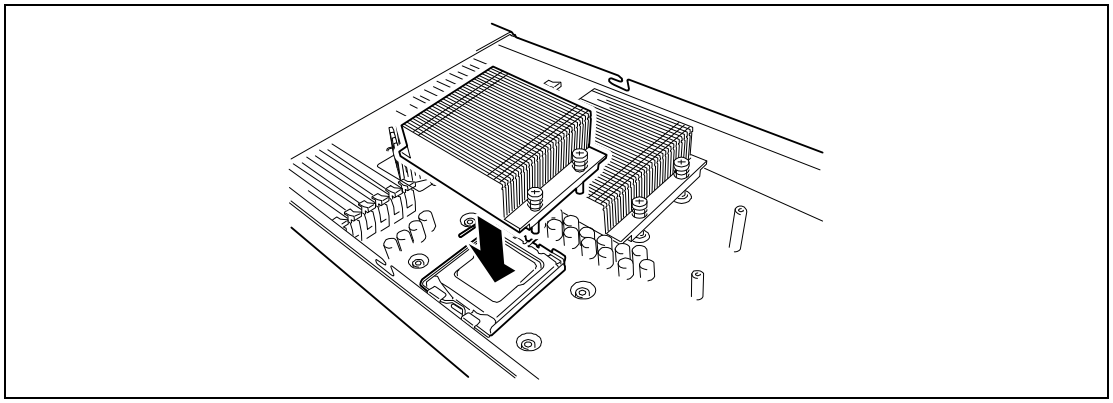
12. Push down the lever to secure the CPU.



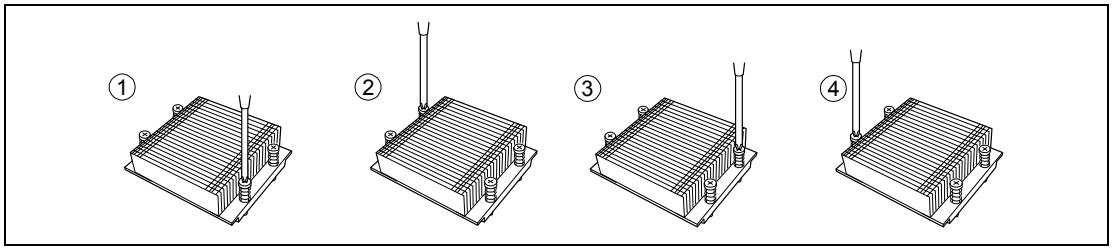
13. Remove the paper protecting the cool sheet from the rear face of the heat sink. Take care not to touch the cool sheet with your hand.

> **IMPORTANT:** Make sure to protect the cool sheet from dirt or scratches.

14. Place the heat sink on the CPU and secure it with four screws.



15. When installing the CPU heat sink, loosely fasten the four screws by the cross-coupling method, and then tighten them securely after making sure that the heat sink is properly seated in the CPU socket.



16. Replace the cover and install the CPU blade in the Blade Enclosure.

17. Power on the CPU blade. In the BIOS Setup utility, set [Advanced] – [Reset Configuration Data] to [Yes].

This is required to update the hardware configuration information. See Chapter 4 for details.

18. Open "Device Manager. " If the "Computer" driver is set to "ACPI uni-processor PC" or "ACPI single-processor PC," change it to "ACPI multi-processor PC." Reboot the system and run NEC EXPRESSBUILDER in Windows to update the system.

Perform the above procedure if

- The system is running under the Windows operating system
- The system has a 1-CPU configuration

This procedure is not required if the "Computer" driver is set to "ACPI multi-processor PC."

Removal

To remove the CPU, follow Steps 1 through 6 of the installation procedure and perform Steps 7 through 15 in the reverse order. To remove the heat sink, remove the screws and gently slide it back and forth to loosen it.

IMPORTANT:

- Remove a CPU only when it is defective. After replacing it, select [Main] – [Processor Settings] – [Processor Retest] in the BIOS Setup utility and set [Processor Retest] to [Yes] to clear the error information (see Chapter 4).
- After operation, the cool sheet at the bottom of the heat sink may adhere to the CPU. To remove the heat sink, gently twist or slide it back and forth to separate it from the CPU. If you remove the heat sink with the cool sheet adhering to the CPU, the CPU and/or socket may be damaged.
- Put a dust cover on the CPU #2 socket if it is empty.
- The CPU blade will not operate if there is no CPU installed in the CPU #1 socket.
- To replace a CPU, the cool sheet should be replaced with a new one. Contact you service representative.

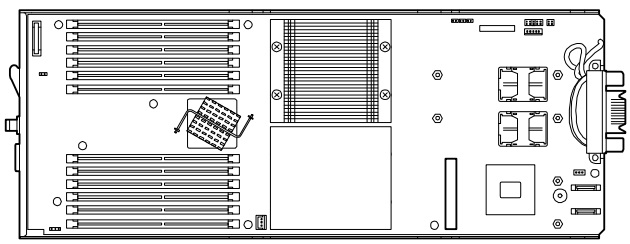
DIMM

A DIMM (Dual Inline Memory Module) is inserted into the DIMM socket on the CPU blade. The CPU blade includes 12 DIMM sockets. Install or remove DIMM's in pairs.

IMPORTANT:

- The DIMM is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the DIMM. Do not touch the DIMM terminals with your bare hands or place the DIMM directly on a desk. For static notes, see the section "Anti-static Measures" described earlier.
- Make sure to use a DIMM authorized by NEC. Installing a third-party DIMM may cause a failure of the DIMM as well as the server. Repair costs of the server due to damage resulting from installation of such a DIMM will be charged even within the warranty period.
- DIMM's must be populated in pairs. Install DIMM's in ascending order of the slot number. Installed DIMM's must have the same specifications. The CPU blade will not operate if DIMM's of different specifications are installed in a single bank.
- The installed memory may not be detected correctly due to 32-bit addressing limitations.
  – Windows Server 2003 Standard Edition: 4GB (up to 3.6GB)
  – Windows Server 2003 Enterprise Edition: 4GB (up to 3.6GB)

DIMM sockets
(#1, #5, #9, #2, #6, #10, #11, #7, #3, #12, #8, and #4 from top)



CPU blade

NOTES:

- Up to 48GB of memory can be added.
- Normally, the CPU blade does not come with memory installed. Memory is a required option.

Adding Order and Precautions

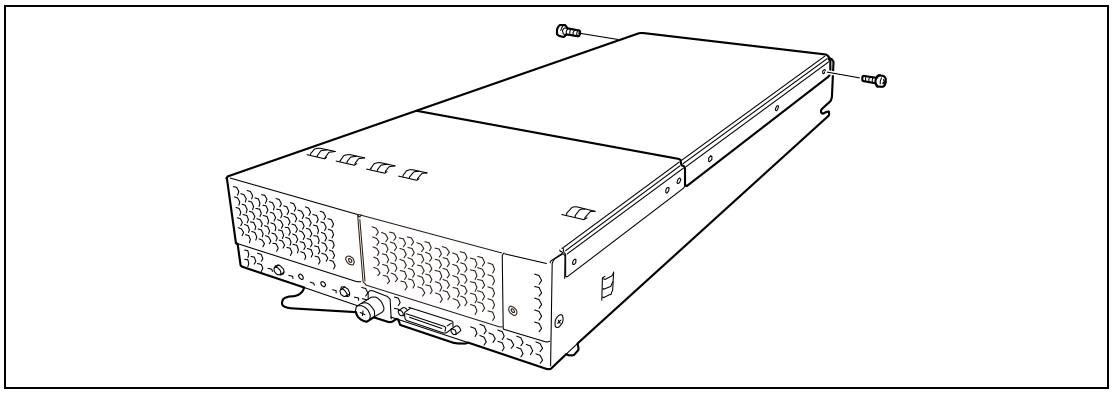
- The DIMM's must be populated in pairs.
- The DIMM's in a pair must have the same capacity and speed. Check the labels on the DIMM's.
- Install pairs of DIMM's into slots as follows:
  - DIMM (first pair): Slots #1 and #2
  - DIMM (second pair): Slots #3 and #4
  - DIMM (third pair): Slots #5 and #6
  - DIMM (fourth pair): Slots #7 and #8
  - DIMM (fifth pair): Slots #9 and #10
  - DIMM (sixth pair): Slots #11 and #12

Installation

Install DIMM's in the CPU blade in the following procedure:

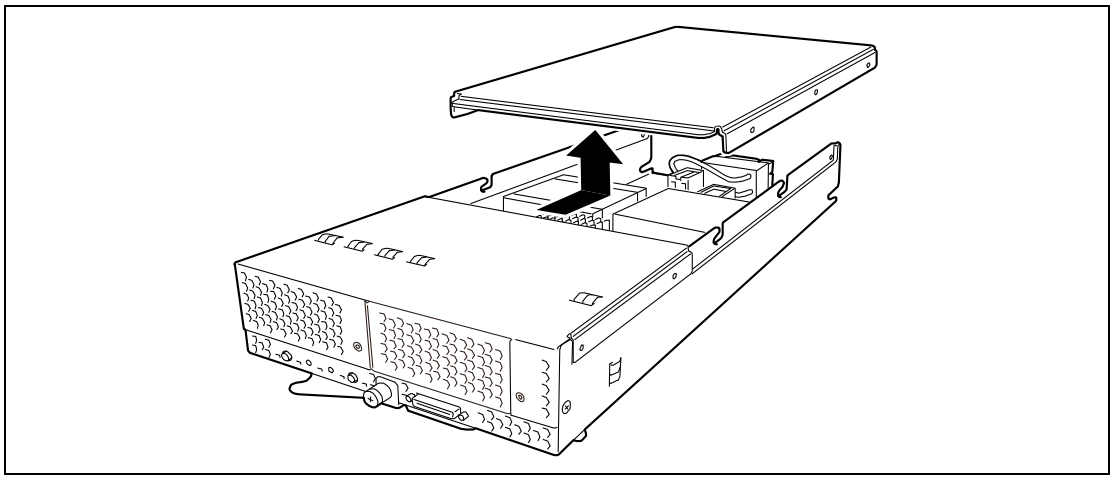
1. Shutdown the CPU blade and turn off the power.
2. Remove the CPU blade from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on an anti-static sheet.
4. Remove the two screws securing the rear cover.

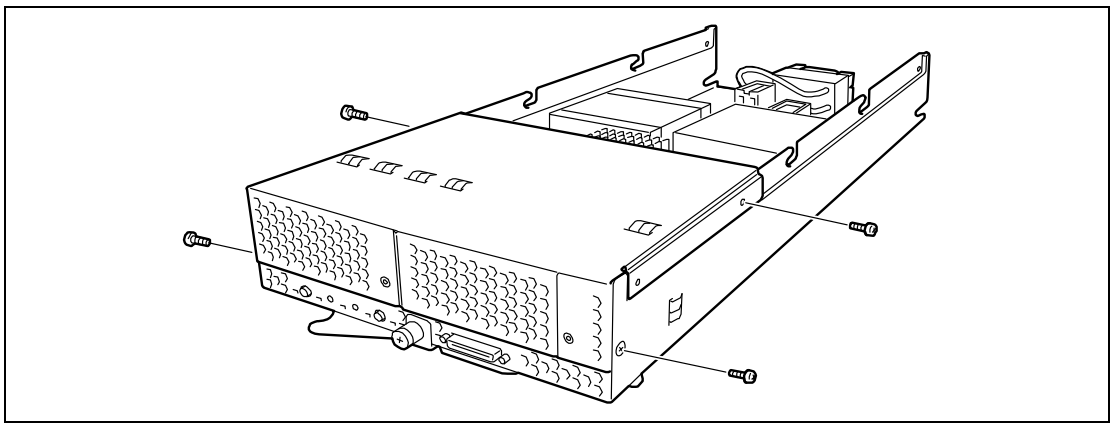


5. Firmly hold the cover, move it slightly toward the rear of the CPU blade, and then lift the cover to remove it.

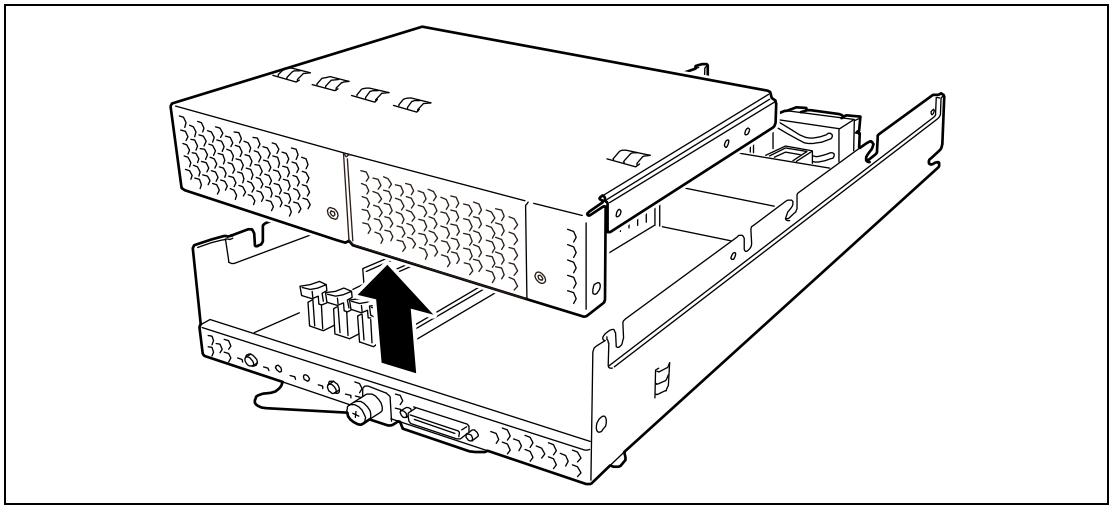
IMPORTANT: Handle the cover carefully so as not to make contact with any electronic devices on the CPU blade.



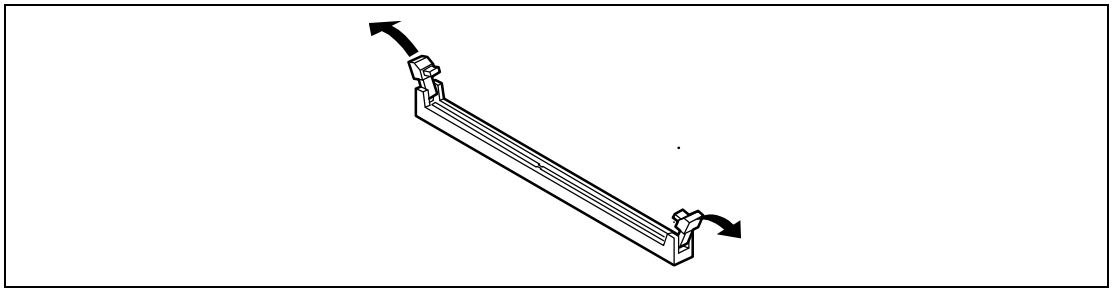
6. Remove the four screws securing the front cover.



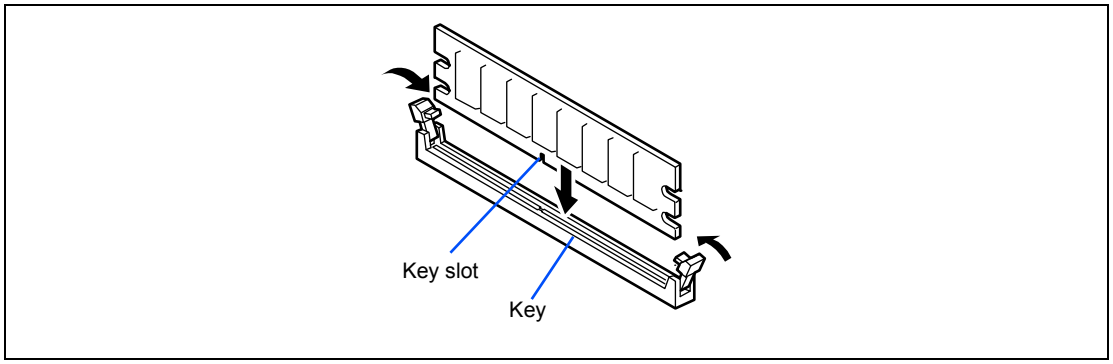
7. Firmly hold the front cover and lift it straight up to remove it from the CPU blade.



8. Open the levers at both ends of the DIMM socket.



9. Push the DIMM into the socket.



IMPORTANT: Use extreme care when installing a DIMM. Applying too much pressure can damage the socket. Keyed DIMM's insert only one way.

NOTE: Check the orientation of the DIMM. The connector of the DIMM is keyed to prevent incorrect insertion.

If the DIMM is correctly inserted into the DIMM socket, the levers close automatically.

10. Close the levers firmly.
11. Install the DIMM's in the other DIMM sockets according to Steps 8 through 10.
12. Replace the covers and install the CPU blade in the Blade Enclosure.
13. Power on the CPU blade. Make sure that no error messages appear on the POST screen.

    See Chapter 8 for details of the POST error messages.
14. In the BIOS Setup utility, select [Advanced] – [Memory Configuration] to make sure that "DIMM Group #1 Status" is set to "Normal" (see Chapter 4).
15. Set [Advanced] – [Reset Configuration Data] to [Yes].

    This is required to update the hardware configuration information. See Chapter 4 for details.
16. Set the paging file size to a value larger than the recommended value (installed memory * 1.5) for Windows.

Removal

Remove the DIMM in the following procedure:

> **NOTE:** To remove the defective DIMM, check the error message appearing in POST or NEC ESMPRO to confirm the CPU blade where the DIMM is installed.

1. Shutdown the CPU blade and turn off the power o.
2. Remove the CPU blade from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on an anti-static sheet.
4. Remove the two screws securing the rear cover.
5. Firmly hold the cover, move it slightly toward the rear of the CPU blade, and then lift the cover to remove it.
6. Remove the four screws securing the front cover.
7. Firmly hold the front cover and lift it straight up to remove it from the CPU blade.
8. Open the levers at both ends of the DIMM socket and remove the DIMM.

9. Repeat the above steps to remove another DIMM.
10. Install a new DIMM.
11. Replace the covers and install the CPU blade in the Blade Enclosure.
12. Power on the CPU blade. Make sure that no error messages appear in POST.

    If an error message appears, write down the message and see the error message list in Chapter 8.

    If the CPU blade does not start, the DIMM may not be installed in the socket correctly. Reinstall the DIMM.
13. In the BIOS Setup utility, select [Advanced] – [Memory Configuration] – [Memory Retest] and set [Memory Retest] to [Yes] to clear the error information (see Chapter 4).
14. Set [Advanced] – [Reset Configuration Data] to [Yes].

    This is required to update the hardware configuration information. See Chapter 4 for details.
15. Set the paging file size to a value larger than the recommended value (installed memory * 1.5) for Windows.

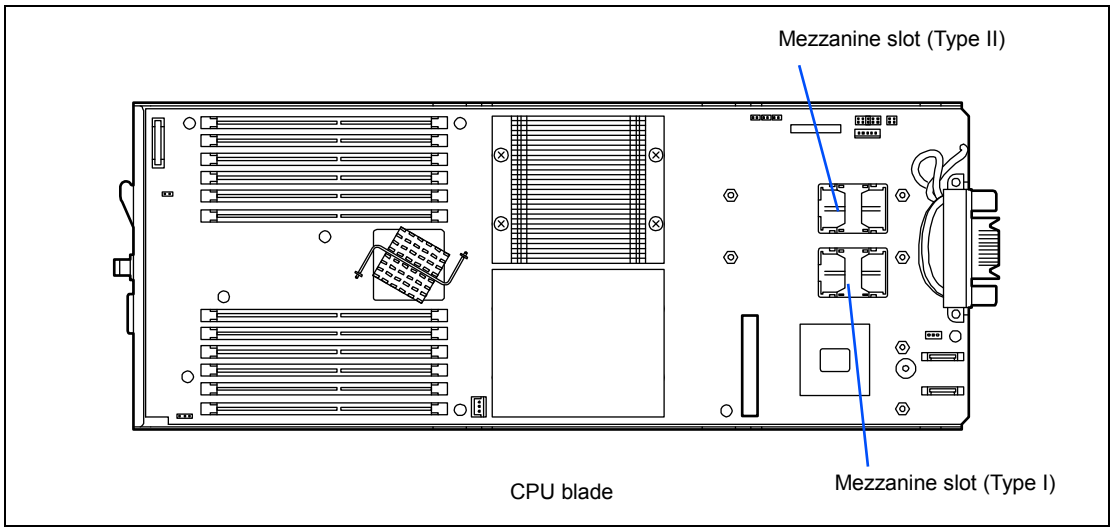
Mezzanine Card

The CPU blade can contain two mezzanine cards which allow network or file storage extension. To install a mezzanine card, use the mezzanine card slot on the CPU blade. The mezzanine card slot is factory-installed on the CPU blade.

IMPORTANT:

- The mezzanine card is extremely sensitive to static electricity. Make sure to touch the metal frame of the server to discharge static electricity from your body before handling the mezzanine card. Do not touch the components on the mezzanine card with your bare hands or place the card directly on a desk. For static notes, see the section "Anti-static Measures" described earlier.
- A combination of boards can be installed in the Blade Enclosure with certain restrictions. Contact your service representative for details.

NOTE: Some optional mezzanine cards use expansion ROM's. Refer to the manual provided with the card to check whether the expansion ROM should be emnabled. Use the BIOS Setup utility to configure the card. See Chapter 4 for details.



Notes

Note the following when installing or removing the mezzanine card.

- Be careful not to touch the terminals of the mezzanine card slot directly. Otherwise, the oil and dirt on your hands may adhere to the terminals and cause a contact failure.
- Set the optional ROM on the unbooted LAN device to "Disabled" in the BIOS Setup utility.
- If a bootable mezzanine card, such as a FibreChannel controller or LAN board, is installed, check its boot priority in the [Boot] menu of the BIOS Setup utility.

Installation

Install a mezzanine card in a mezzanine card slot in the following procedure:

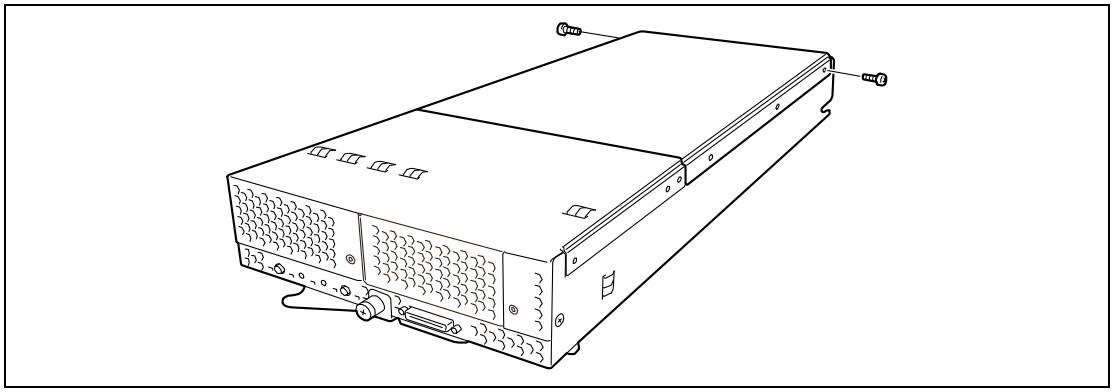
IMPORTANT: There are two types of mezzanine cards for the CPU blade: Type I and Type II.
Type I mezzanine cards can be installed in Type I or Type II slots.
Type II mezzanine cards can only be installed in Type II slots.
To install the mezzanine card, start installation from the bottom slot (for Type I).

NOTE: Before installing a mezzanine card, make sure that the connection port on the card fits the connector on the mezzanine card slot.

1. Shutdown the CPU blade and turn off the power.
2. Remove the CPU blade from the Blade Enclosure.

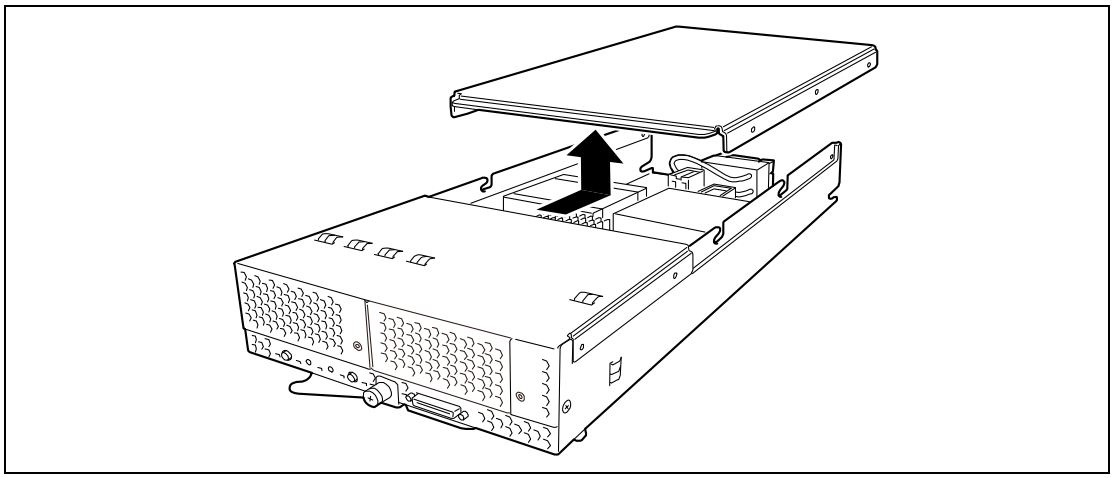
   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on an anti-static sheet.

4. Remove the two screws securing the rear cover.



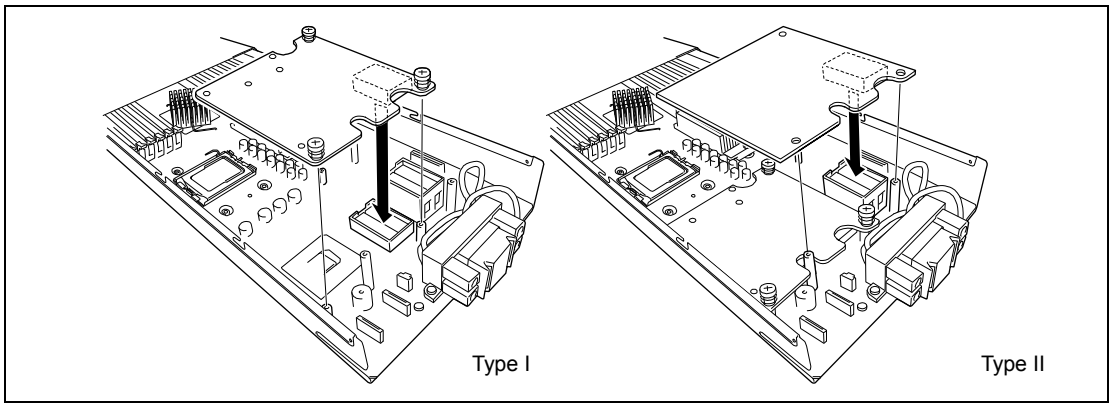
5. Firmly hold the cover, move it slightly toward the rear of the CPU blade, and then lift the cover to remove it.

> **IMPORTANT:** Handle the cover carefully so as not to make contact with any electronic devices on the CPU blade.



6. Check the position of the slot to install the mezzanine card.

7. From the top of the CPU blade, position the connector of the mezzanine card so that it aligns with the connector of the mezzanine card slot, and insert the mezzanine card into the slot.



IMPORTANT:

- Do not touch the terminals on the board. A contact failure may occur if the board is installed with dirt and oil adhering to the terminals.
- Insert the mezzanine card straight into the connector. The terminal or connector may be damaged if it is not inserted correctly.
- If the board cannot be installed securely, remove the board and then install it again. Applying excess force to the board may damage it.

8. Push the mezzanine card firmly to connect the card to the slot.

9. Tighten the screws to secure the mezzanine card to the spacer on the CPU blade.

10. Replace the rear cover.

11. Secure the rear cover with the two screws.

12. Install the CPU blade in the Blade Enclosure according to the User's Guide of the Blade Enclosure.

13. Power on the CPU blade. Make sure that no error messages associated with the card appear on the POST screen.

See Chapter 8 for details of POST error messages.

14. In the BIOS Setup utility, set [Advanced] – [Reset Configuration Data] to [Yes].

This is required to update the hardware update information. See Chapter 4 for details.

15. Run the BIOS configuration utility of the mezzanine card to configure it.

The BIOS configuration utility may vary depending on the type of the mezzanine card. Refer to the documentation provided with the card for details.

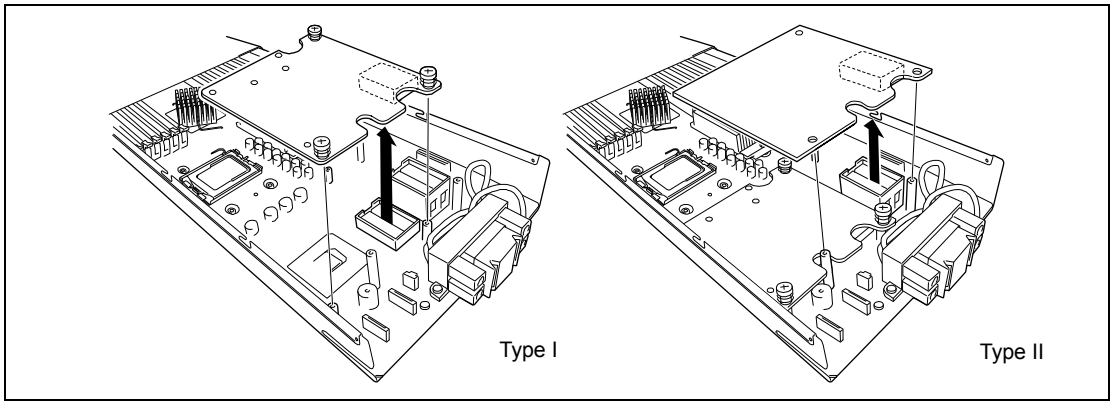
Removal

To remove the mezzanine card, follow the procedure below:

1. Shutdown the CPU blade and turn off the power.
2. Remove the CPU blade from the Blade Enclosure.

   Refer to the User's Guide of the Blade Enclosure.
3. Place the CPU blade on an anti-static sheet.
4. Remove the two screws securing the rear cover.
5. Firmly hold the cover, move it slightly toward the rear of the CPU blade, and then lift the cover to remove it.
6. Remove the three screws securing the mezzanine card.
7. Hold both ends of the mezzanine card and remove it from the slot.

   Lift the card straight up from the CPU blade.



8. Replace the rear cover.
9. Secure the rear cover with the two screws.
10. Install the CPU blade in the Blade Enclosure according to the User's Guide of the Blade Enclosure.

Appendix A

Specifications

Item		NEC Express5800/120Bb-d6			
		N8400-064AF	**N8400-065AF**	**N8400-066AF**	**N8400-067AF**
CPU	Type	Quad-core Intel® Xeon® processor X5460	Quad-core Intel® Xeon® processor L5420	Quad-core Intel® Xeon® processor E5405	Dual-core Intel® Xeon® processor X5260
	Clock	3.16GHz	2.50GHz	2.00GHz	3.33GHz
	FSB	1333MHz			
	L2 Cache	2x6MB			6MB
	Standard	1			
	Maximum	2			
Chipset		Intel 5000P chipset			
Memory	Standard	None (Required option)			
	Maximum	48GB			
	Memory module	DDR2-667 FB-DIMM (2 x 512MB/1GB/2GB/4GB) Must be installed in pairs.			
	Error check	ECC			
Graphics (VRAM)		640x480 to 1024x768 (VRAM 2MB)			
Auxiliary input device	Floppy disk	Option (USB)			
	CD/DVD-ROM	Option (USB)			
Mezzanine card slot	Type 1	2 slots max. (when Type 2 Mezzanine card is not installed)			
	Type 2	1 slot			
LAN interface		1000Base-T × 2			
External interface		SUV connector (to be connected to the front panel, serial ×1, VGA×1, USB×2) ×1			
External dimensions (mm)		181 (H) × 516 (D) × 52 (W)			
Weight		5.1 kg Max.			
Power supply		+12Vdc and +5VS (supplied from the Blade Enclosure)			
Power consumption (+12Vdc)		425 W	329 W	329 W	332 W
Environmental requirements	Temperature	10 to 35°C			
	Humidity	20 to 80% RH (no condensation)			

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Appendix B

Installing the Operating System

SETUP AND RE-SETUP OF CPU BLADE OF DISKLESS MODEL

Local Installation

Before beginning installation, make sure that the CPU blade is connected to the keyboard, display unit, DVD-ROM drive and floppy disk drive.

Notes

Before beginning the local installation, read the notes described here carefully.

Key entry

Use the keyboard only when the USB floppy disk drive is not being accessed (the access lamp is off).

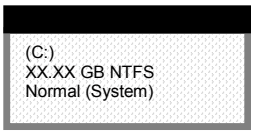
System update

If the system configuration is modified, always update the system by using the NEC EXPRESSBUILDER DVD. See Chapter 6 for details.

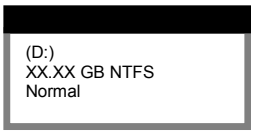
Re-installation to dynamic disk

When reinstalling the operating system on a hard disk drive that is upgraded to a dynamic disk, one or more partitions may exist. If you wish to retain the partitions, note the following:

<Example>



System



Data area (when leaving this partition is desired.)

- When reinstalling the operating system, select the system partition where the operating system is installed previously.
- Select "Use current file system as it is (no change)" for the format of the operating system partition.

Creating Partition Size

- For Windows Server 2003 x64 Editions:

  The system partition size can be calculated from the following formula:

Size necessary to install the system	+ Paging File Size + Dump File Size + Application Size
Size necessary to install the system	= 4100MB
Paging File Size (Recommended)	= Mounted Memory Size * 1.5
Dump file Size	= Mounted Memory Size + 1MB
Application Size	= Required Size

  IMPORTANT:

  - The above paging file size is necessary for collecting the debug information (memory dump). If a value smaller than the "Recommended" one is set for the initial size of the paging file, the correct debug information (memory dump) may not be collected.
  - Regardless of the size of the mounted memory or the Write debugging information (type of memory dump), the maximum size of the dump file is 'The size of the mounted memory + 1MB.'
  - If you need to install other applications, add the hard disk space required for those applications.

  For example, if the mounted memory size is 512MB, the partition size calculated by the above formula is as follows:

  4100MB + (512MB * 1.5) + (512MB + 1MB) + Application Size
  = 5381MB + Application Size

If the recommended partition size of a system as described in the formula above exceeds the capacity of the hard disk drive, the paging file size of the partition can be stored on a separate disk.

1. Calculate the "Size required for installation + Paging file size" with the formula described above.
2. See Chapter 5 to set debugging information (equivalent to the dump file size) to be written to a separate disk.

   If the disk does not have enough free space for the dump file size to be written, install an additional disk.

- For Windows Server 2003:

  The system partition size can be calculated from the following formula:

Size necessary to install the system	+ Paging File Size + Dump File Size + Application Size
Size necessary to install the system	= 3500MB (Windows Server 2003 R2)
Paging File Size (Recommended)	= Mounted Memory Size * 1.5
Dump file Size	= Mounted Memory Size + 12MB
Application Size	= Required Size

  IMPORTANT:

  - The above paging file size is necessary for collecting the debug information (memory dump). If a value smaller than the "Recommended" one is set for the initial size of the paging file, the correct debug information (memory dump) may not be collected.
  - The maximum paging file size which can be set on one partition is 4095MB. If the above paging file size exceeds 4095MB, specify 4095MB for the paging file size.
  - The maximum dump file size for a system with more than 2GB of memory is '2048MB + 12MB.'
  - If you need to install other applications, add the hard disk space required for those applications.

  For example, if the mounted memory size is 512MB, the partition size calculated by the above formula is as follows:

  3500MB + (512MB * 1.5) + (512MB + 12MB) + Application Size
  = 4792MB + Application Size

If the recommended partition size of a system as described in the formula above exceeds the capacity of the hard disk drive, the paging file size of the partition can be stored on a separate disk.

1. Calculate the "Size required for installation + Paging file size" with the formula described above.
2. See Chapter 5 to set debugging information (equivalent to the dump file size) to be written to a separate disk.

   If the disk does not have enough free space for the dump file size to be written, install an additional disk.

Setup Procedure

The following describes the local installation procedure of Windows Server 2003 x64 Editions/Windows Server 2003.

> **IMPORTANT:** Before beginning installation, see the notes described earlier in this chapter.

Items Required for Local Installation

Before beginning installation, prepare the following items:

- DVD-ROM drive
- Floppy disk drive
- NEC EXPRESSBUILDER (DVD-ROM)
- For Windows Server 2003 R2 x64 Editions
  - Microsoft Windows Server 2003 R2 Standard x64 Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Standard x64 Edition DISC 2 (CD-ROM)
  - Microsoft Windows Server 2003 R2 Enterprise x64 Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Enterprise x64 Edition DISC 2 (CD-ROM)
  - Windows Server 2003 x64 Edition OEM-DISK
- For Windows Server 2003 R2
  - Microsoft Windows Server 2003 R2 Standard Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Standard Edition DISC 2 (CD-ROM)
  - Microsoft Windows Server 2003 R2 Enterprise Edition DISC 1 (CD-ROM)
    Microsoft Windows Server 2003 R2 Enterprise Edition DISC 2 (CD-ROM)
  - Windows Server 2003 OEM-DISK
- First Step Guide
- User's Guide (this manual)

Optional Board Supported by NEC EXPRESSBUILDER

The NEC EXPRESSBUILDER DVD provided with the server supports the following mass storage controllers for installation:

> **NOTE:** If you want to install the OS using a mass storage controller other than the ones listed below, see "Installing with the OEM-FD for Mass storage device" and "Installing Optional Mass Storage Driver" of "Parameter File Creator" in Chapter 6.

- Controllers supporting installation of OS with Express Setup
  - N8403-018 FibreChannel Controller

Installation of Windows Server 2003 R2 x64 Editions

Install Windows Server 2003 R2 x64 Editions in the following procedure:

1. Insert the Windows Server 2003 R2 x64 Edition CD-ROM into the DVD-ROM drive.
2. Turn on the CPU blade.
3. Press **F6** when the message "Setup is inspecting your computer's hardware configuration..." appears at the top of the screen.

   NOTE:

   - Use the keyboard only when the USB floppy disk drive is not being accessed (the access lamp is off).

   The following steps are not required if **F6** is not pressed.

   Refer to the "First Step Guide" for details.
4. When the following message appears, press **S**:

   ```
   Setup could not determine the type of one or more mass storage
   devices installed in your system, or you have chosen to
   manually specify an adapter. Currently, Setup will load
   support for the following mass storage devices.
   ```

   The following message appears:

   ```
   Please insert the disk labeled
   manufacturer-supplied hardware support disk
   into Drive A:
   * Press ENTER when ready.
   ```
5. Insert the Windows Server 2003 x64 Edition OEM-DISK for NEC EXPRESSBUILDER into the floppy disk drive and press **Enter**.

   A list of the drivers for the mass storage devices is displayed.
6. Select [Emulex LPX000 PCI Fibre Channel HBA] and press **Enter**.
   If a message appears, press **S**.

   Then, it returns to the screen of Step 4.
7. When the following message is shown, press **Enter** to start "Welcome to Setup."
8. When the installation of Windows Server 2003 R2 x64 Edition finishes, the system reboots automatically.
9. The [Windows Setup] screen will be displayed after logging on to the system.

Windows Setup
Windows Setup is not complete. We recommend that you continue Setup so that you can install the additional components that are available in this version of the Windows Server operating system.
For more information about the new components, see the documentation on Windows Server CD 2.
To continue Setup, insert Windows Server CD 2, or specify the location where the Windows Server CD 2 files are stored, and then click OK.
Location of Windows Server CD 2 files:
D:\
Browse...
OK
Cancel

IMPORTANT:

- The [Windows Setup] screen may not be displayed.
  Be sure to install Microsoft Windows Server 2003 R2 x64 Edition DISC 2 according to the following procedures.
- You can install Microsoft Windows Server 2003 R2 x64 Edition DISC 2 after the application of "System update." Be sure to install Microsoft Windows Server 2003 R2 x64 Edition DISC 2. In this case, note that the [Windows Setup] screen is not displayed.

10. Insert the Microsoft Windows Server 2003 R2 x64 Edition DISC 2 CD-ROM into the DVD-ROM drive.

Confirm the parameters and click [OK].

11. When the installation finishes, remove the Microsoft Windows Server 2003 R2 x64 Edition DISC 2 CD-ROM from the DVD-ROM drive and restart the system.

After installation is complete, be sure to execute the tasks described in "Setup of Device Driver (Normally Installed in Server)" and "Updating the System" of this chapter.

Procedure for License Authentication

The product key used for license authentication should match the COA label of the product key for Windows Server 2003 x64 Editions.

> **NOTE:** Perform activation within 30 days. The system may be disabled if activation is not performed within 30 days.

Installing and Setting Device Drivers

Follow the steps below to install and configure the device drivers.

Installing Fibre Channel Controller Driver (N8403-018)

If you use the FibreChannel Controller (N8403-018), update your system with the NEC EXPRESSBUILDER DVD.

The Fibre Channel controller driver will be installed automatically.

Installation of Windows Server 2003 R2

Install Windows Server 2003 R2 in the following procedure:

1. Insert the Windows Server 2003 R2 CD-ROM into the DVD-ROM drive.
2. Turn on the CPU blade.
3. Press **F6** when the message "Setup is inspecting your computer's hardware configuration..." appears at the top of the screen.

   NOTE:

   - Use the keyboard only when the USB floppy disk drive is not being accessed (the access lamp is off).

   The following steps are not required if **F6** is not pressed.

   Refer to the "First Step Guide" for details.
4. When the following message appears, press **S**:

   ```
   Setup could not determine the type of one or more mass storage
   devices installed in your system, or you have chosen to
   manually specify an adapter. Currently, Setup will load
   support for the following mass storage devices.
   ```

   The following message appears:

   ```
   Please insert the disk labeled
   manufacturer-supplied hardware support disk
   into Drive A:
   * Press ENTER when ready.
   ```
5. Insert the Windows Server 2003 OEM-DISK for NEC EXPRESSBUILDER into the floppy disk drive and press **Enter**.

   A list of the drivers for the mass storage devices is displayed.
6. Select [Emulex LPX000 PCI Fibre Channel HBA] and press **Enter**.

   If a message appears, press **S**.

   Then, it returns to the screen of Step 4.
7. When the following message is shown, press **Enter** to start "Welcome to Setup."
8. When the installation of Windows Server 2003 finishes, the system reboots automatically.
9. When Windows Server 2003 R2 is installed, the [Windows Setup] screen will be displayed after logging on to the system.

Windows Setup
Windows Setup is not complete. We recommend that you continue Setup so that you can install the additional components that are available in this version of the Windows Server operating system.
For more information about the new components, see the documentation on Windows Server CD 2.
To continue Setup, insert Windows Server CD 2, or specify the location where the Windows Server CD 2 files are stored, and then click OK.
Location of Windows Server CD 2 files:
D:\
Browse...
OK
Cancel

IMPORTANT:

- The [Windows Setup] screen may not be displayed.
  Be sure to install Microsoft Windows Server 2003 R2 DISC 2 according to the following procedures.
- You can install Microsoft Windows Server 2003 R2 DISC 2 after the application of "System update." Be sure to install Microsoft Windows Server 2003 R2 DISC 2. In this case, note that the [Windows Setup] screen is not displayed.

10. Insert the Microsoft Windows Server 2003 R2 DISC 2 CD-ROM into the DVD-ROM drive.

Confirm the parameters and click [OK].

11. When the installation finishes, remove the Microsoft Windows Server 2003 R2 DISC 2 CD-ROM from the DVD-ROM drive and restart the system.
12. After installation is complete, be sure to execute the tasks described in "Setup of Device Driver (Normally Installed in Server)" and "Updating the System" of this chapter.

Procedure for License Authentication

The product key used for license authentication should match the COA label of the product key for Windows Server 2003.

> **NOTE:** Perform activation within 30 days. The system may be disabled if activation is not performed within 30 days.

Installing and Setting Device Drivers

Follow the steps below to install and configure the device drivers.

Installing Fibre Channel Controller Driver (N8403-018)

If you use the FibreChannel Controller (N8403-018), update your system with the NEC EXPRESSBUILDER DVD.

The Fibre Channel controller driver will be installed automatically.

REMOTE DESKTOP FOR MANAGEMENT

This section describes the necessary configuration settings of the Remote Desktop for Management for Windows Server 2003 x64 Editions or Windows Server 2003.

> **IMPORTANT:** The license for Sever Client Access is not needed to use the Remote Desktop for Management.
> The Remote Desktop for Management provides two connections simultaneously.

Windows Server 2003 x64 Editions

The configuration procedure is as follows:

> **IMPORTANT:** Set the password for the Administrator account in order to use the Remote Desktop for Management.

1. Click [Start], click [Control Panel], and then open [System].
2. Click the [Remote] tab, check [Allow users to connect remotely to this computer], and then click [OK].

Windows Server 2003

The configuration procedure is as follows:

> **IMPORTANT:** Set the password for the Administrator account in order to use the Remote Desktop for Management.

1. Click [Start], click [Control Panel], and then open [System].
2. Click the [Remote] tab, check [Allow users to connect remotely to this computer], and then click [OK].

SETUP OF DEVICE DRIVER (NORMALLY INSTALLED IN SERVER)

For the installation and setup of each optional device driver, refer to the documentation provided with the device.

Network Driver

The two network drivers for the standard equipment are automatically installed.
However, the transfer rate and duplex mode of each network driver must be set.

When the system is Windows Server 2003 x64 Editions

[When PROSet is not installed]

1. Open [Local Area Connection Properties].
   1. Click [Start], click [Control Panel], click [Network Connections], and click [Local Area Connection].
2. Click [Configure].

   The properties dialog box for the network adapter appears.
3. Click the [Advanced] tab and specify [Link Speed & Duplex] values that match the hub.
4. Click [OK].

[When PROSet is installed]

1. Open [Device Manager].
2. Double-click [(Network Adapter Name)] in the list.
3. Click the [Link] tab and specify [Speed & Duplex] values that match the hub.
4. Click [OK].

When the system is Windows Server 2003

[When PROSet is not installed]

1. Open [Local Area Connection Properties].

   1. Click [Start], click [Control Panel], click [Network Connections], and click [Local Area Connection].

2. Click [Configure].

   The properties dialog box for the network adapter appears.

3. Click the [Advanced] tab and specify [Link Speed & Duplex] values that match the hub.

4. Click [OK].

[When PROSet is installed]

1. Open [Device Manager].

2. Double-click [(Network Adapter Name)] in the list.

3. Click the [Link] tab and specify [Speed & Duplex] values that match the hub.

4. Click [OK].

PROSet

PROSet is a utility that configures and monitors the functions of the network adapter.

PROSet provides the following functions:

- Detailed adapter information.
- Diagnosis by using loopback and packet send tests.
- Teaming configuration.

Configuring several network adapters as one team provides a fault-tolerant networking environment and enhances throughput between the switches.

PROSet is necessary to utilize these features.

Follow the procedure below to install PROSet:

When the system is Windows Server 2003 x64 Editions

1. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive.
2. Open [Windows Explorer].

   Click [Start], click [Programs], click [Accessories], and click [Windows Explorer].
3. Run "dxsetup.exe" in the following directory:

   \001\win\winnt\w2k3amd\ns41s\proset\ws3xpx64

   The [Intel(R) PROSet - Install Shield Wizard] starts.
4. Click [Next].
5. In the [License Agreement] window, select [I Accept the terms in the license agreement].
6. Click [Next].
7. Select [Complete] and click [Next].
8. Click [Install] to begin the installation and click [Finish] in [InstallShield Wizard Completed].
9. Restart the system.

When the system is Windows Server 2003

1. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive.
2. Open [Windows Explorer].

   Click [Start], click [Programs], click [Accessories], and click [Windows Explorer].
3. Run "dxsetup.exe" in the following directory:

   \001\win\winnt\dotnet\ns41s\proset\2kxpws03

   The [Intel(R) PROSet - Install Shield Wizard] starts.
4. Click [Next].
5. In the [License Agreement] window, select [I Accept the terms in the license agreement].
6. Click [Next].
7. Select [Complete] and click [Next].
8. Click [Install] to begin the installation and click [Finish] in [InstallShield Wizard Completed].
9. Restart the system.

Graphics Accelerator

The driver for the standard graphics accelerator will be installed automatically. The following procedure describes how to install it manually:

1. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive.
2. Click [Start], click [Programs], click [Accessories], and click [Windows Explorer].
3. Run "SETUP.EXE" in the following directory:

   \001\win\winnt\dotnet\video\matrox\setup.exe

   Windows Server 2003 x64 Editions:

   \001\win\winnt\w2k3amd\video\matrox\setup.exe
4. Follow the messages to continue the installation.

   If the dialog message "Digital Signature could not been found" appears, select [Yes] to continue.
5. Remove the NEC EXPRESSBUILDER DVD from the DVD-ROM drive and restart the system.

Fibre Channel Controller Driver

If you use the FibreChannel Controller (N8403-018), update your system with the NEC EXPRESSBUILDER DVD.

The Fibre Channel Controller driver will be installed automatically.

> **NOTE:** This procedure is the same for Windows Server 2003 x64 Editions and Windows Server 2003.

Optional Network Board Driver

If you want to use the optional Network Board (N8403-017/020), install the driver stored on the NEC EXPRESSBUILDER DVD.

For Windows Server 2003, the driver is in the following directory:

"\001\win\winnt\dotnet\ns41s\pro1000\ws03xp2k"

For Windows Server 2003 x64 Editions, the driver is in the following directory:

"\001\win\winnt\w2k3amd\ns41s\pro1000\ws3xpx64"

Refer to the installation procedure described in the section "Installation of the Optional Network Board Driver."

Installation of the Optional Network Board Driver

1. Open [Device Manager].
2. Click [Network adapters] and double-click [(Network Adapter Name)].

   [(Network Adapter Name) Properties] appears.

   NOTE: [(Intel(R) PRO/1000...)] is the name of the onboard adapter. All other names are for the Optional Network Board.

3. Click the [Driver] tab and click [Update Driver...].

   The [Hardware Update Wizard] appears.

4. Select the [Install from a list or specific location (Advanced)] radio button and click [Next].
5. Select the [Search for the best driver in these locations] radio button and check the [Search removable media (floppy, CD-ROM...)] check box.
6. Check the [Include this location in the search] check box and specify:

   For Windows Server 2003

   "\001\win\winnt\dotnet\ns41s\pro1000\ws03xp2k"

   For Windows Server 2003 x64 Editions

   "\001\win\winnt\w2k3amd\ns41s\pro1000\ws3xpx64"

   Then, click [Next].
7. Click [Finish].

Setup of Adapter Fault Tolerance (AFT)/Adaptive Load Balancing (ALB)

Adapter Fault Tolerance (AFT) is a feature that places more than one LAN controller on the same LAN (same segment), and automatically switches the process of the primary controller to the backup controller when any trouble occurs on the primary.

Adaptive Load Balancing (ALB) is a feature that connects more than one LAN controller to the same hub and enhances the throughput by operating packet transmission from the server.

This feature includes the AFT feature.

IMPORTANT:

- AFT/ALB configuration must be done after installing the drivers and restarting the system.
- The adapters specified as a group for Adapter Fault Tolerance (AFT) can work connected to the same hub or separate hubs. If they are connected to separate hubs, those hubs must exist on the same LAN (Segment). Therefore, set the connection as a cascade connection.
- The adapters specified as a group for Adaptive Load Balancing (ALB) can only be connected to the switching hub.

If you want to use the AFT/ALB features, follow the procedure below:

When the system is Windows Server 2003 x64 Editions

1. Open [Intel ® PROSet].

   Click [Start], click [Control Panel], click [Administrative Tools], and click [Computer Management]. Double-click the [(Network Adapter Name)] in the Network Adapter list.

2. Select the [Teaming] tab, check [Team with other adapters], and click [New Team...].

   The [New Team Wizard] dialog box appears. Click [Next].

   * Specify a name for the team if necessary.

3. Select the adapters to include in the team.
4. Select "Adapter Fault Tolerance" or "Adaptive Load Balancing" and click [Next].
5. Click [Finish].
6. If it is necessary to set the adapter priority setting, refer to the following step.

   If it is not necessary, go to Step 7.

   1. Click the [Settings] tab in [TEAM:xxx #yy Properties].
   2. Click [Modify Team].
   3. Select the adapter [Intel®PRO/1000....] and click [Set Primary] or [Set Secondary].
   4. Click [OK].
   5. In [TEAM:xxx #yy Properties], the priority setting will appear in the list.
   6. Click [OK].

7. In the [Intel ® PROSet for Wired Connections] dialog box, click [OK].
8. Restart the system.

When the system is Windows Server 2003

1. Open [Intel ® PROSet].

   Click [Start], click [Control Panel], click [Administrative Tools], and click [Computer Management]. Double-click the [(Network Adapter Name)] in the Network Adapter list.

2. Select the [Teaming] tab, check [Team with other adapters], and click [New Team...].

   The [New Team Wizard] dialog box appears. Click [Next].

   * Specify a name for the team if necessary.

3. Select the adapters to include in the team.
4. Select "Adapter Fault Tolerance" or "Adaptive Load Balancing" and click [Next].
5. Click [Finish].
6. If it is necessary to set the adapter priority setting, refer to the following step.

   If it is not necessary, go to Step 7.

   1. Click the [Settings] tab in [TEAM:xxx #yy Properties].
   2. Click [Modify Team].
   3. Select the adapter [Intel®PRO/1000....] and click [Set Primary] or [Set Secondary].
   4. Click [OK].
   5. In [TEAM:xxx #yy Properties], the priority setting will appear in the list.
   6. Click [OK].

7. In the [Intel ® PROSet for Wired Connections] dialog box, click [OK].
8. Restart the system.

RE-INSTALLATION OF THE NETWORK DRIVER

When the system is Windows Server 2003 x64 Editions

If you delete the network drivers, follow the procedure below to reinstall them:

1. Restart the operating system.
2. The [Upgrade Device Driver Wizard] dialog box appears.

   Click [Next].
3. Select the [Search for a suitable driver for my device (recommended)] radio button and click [Next].
4. Select the [Specify a location] check box and deselect the other check boxes.

   Click [Next].
5. When using the [Intel(R) PRO/1000 EB Backplane Connection with I/O Acceleration] network adapter, specify the following location:

   "\001\win\winnt\w2k3amd\ns41s\pro1000\ws3xpx64"

   Then, click [OK].
6. Click [Next].
7. Click [Finished].

When the system is Windows Server 2003

If you delete the network drivers, follow the procedure below to reinstall them:

1. Restart the operating system.
2. The [Upgrade Device Driver Wizard] dialog box appears.

   Click [Next].
3. Select the [Search for a suitable driver for my device (recommended)] radio button and click [Next].
4. Select the [Specify a location] check box and deselect the other check boxes.

   Click [Next].
5. When using the [Intel(R) PRO/1000 EB Backplane Connection with I/O Acceleration] network adapter, specify the following location:

   "\001\win\winnt\dotnet\ns41s\pro1000\ws03xp2k"

   Then, click [OK].
6. Click [Next].
7. Click [Finished].

SETTING FOR SOLVING PROBLEMS

Configure the following settings in advance to ensure quick recovery from system failures.

Memory Dump (Debug Information) - Windows Server 2003 -

This section describes the procedures for collecting memory dump (debug information) on the server.

IMPORTANT: Cautions for the Memory Dump

- The maintenance personnel designated by your sales agent are responsible for collecting the memory dump. Customers should only configure settings of the memory dump.
- Sometimes a message indicating a shortage of virtual memory appears at system startup. When a failure has occurred after configuring the settings described here and you have restarted the system to save the memory dump, continue the startup. If you restart the system, you may not be able to collect the memory dump accurately.

Follow the procedure below to configure the memory dump:

1. Click [Start], click [Control Panel], and then open [System].

   The [System Properties] dialog box appears.

2. Select the [Advanced] tab.
3. Click [Settings] in the [Startup and Recovery] box.

IMPORTANT:

Windows Server 2003 x64 Editions

- [Complete memory dump] should be specified for writing debug information.
  However, if the mounted memory size is over 2GB, specify [Kernel memory dump]. You cannot specify [Complete memory dump].
- Specify a disk drive that has free space in excess of the memory size on the system +1MB or more.
- If the memory is expanded to more than 2GB, change Write Debugging Information to [Kernel memory dump] before expanding the memory. The size of
  the debugging information (memory dump) to be collected changes due to the memory increase. Verify how much free space exists on the hard disk where debugging information is to be written.

Windows Server 2003

- [Complete memory dump] should be specified for writing debug information. However, if the mounted memory size is over 2GB, specify [Kernel Memory Dump]. You cannot specify [Complete memory dump].
- Specify a drive that has free space in excess of the memory size on the system + 12MB or more (if the memory size is over 2GB, 2048MB + 12MB).
- If the memory is expanded to more than 2GB, change Write Debugging Information to [Kernel memory dump] before expanding the memory. The size of the debugging information (memory dump) to be collected changes due to
  the memory increase. Verify how much free space exists on the hard disk where debugging information is to be written.

4. Specify "Complete memory dump" and enter the location where debug information is to be written in the text box.

When writing debug information under the file name “MEMORY.DMP” in the D drive:
D:\MEMORY.DMP

5. Click [Settings] in the [Performance] box.

   The [Performance Options] window appears.

6. Click the [Advanced] tab on the [Performance Options] window.

7. Click [Change] in the [Virtual memory] box.

8. Change the value set for [Initial Size] in the [Paging file size for selected drive] box to the [Recommended] value or more, and then click [Set].

   IMPORTANT:

   - Be sure to set the paging file size to more than the [Recommended] value in the OS partition. If a value smaller than the [Recommended] value is set for [Initial Size] of the paging file, accurate debug information (memory dump) may not be collected.
   - For more information on the "Recommended" value, see "About the System Partition Size" described earlier.
   - If the memory is expanded, reset the paging file size according to the memory size.

9. Click [OK].

   A message is displayed asking you to restart the system depending on the settings changed. Restart the system according to the message.

Dr. Watson

Dr. Watson is a debugger for application errors. When an application error occurs, Dr. Watson diagnoses the system and records the diagnostic information in a log file. Configure Dr. Watson to collect diagnostic information in the following procedure:

1. Click [Run...] on the [Start] menu.
2. Enter "drwtsn32.exe" in the [Open] box and click [OK].

   The [Dr. Watson for Windows] dialog box appears.
3. Specify the location to store the diagnostic information in the [Log File Path] box.

   Diagnostic information is saved under the file name “DRWTSN32.LOG.”

   NOTE: You cannot specify a network path. Specify a path on the local system.
4. Specify the location of the crash dump file in the [Crash Dump] box.

   NOTE: A "Crash Dump File" is a binary file that can be read with Windows Debugger.
5. Check the following check boxes in the [Options] box:

   ☐ Dump Symbol Table
   ☐ Dump All Thread Contexts
   ☐ Append TO Existing Log File
   ☐ Create Crash Dump File

   For more information on each of the above functions, refer to Online Help.
6. Click [OK].

Network Monitor

A network monitor is useful for discovering the causes of network failures and determining the necessary steps to resolve them. To use a network monitor, you need to restart the system after installation. It is recommended to install a network monitor before a failure occurs.

1. From the [Start] menu, click [Control Panel].

   The [Control Panel] appears.

2. Double-click [Add or Remove Programs].

   The [Add or Remove Programs] dialog box appears.

3. Click [Add/Remove Windows Component].

   The [Windows Components Wizard] dialog box appears.

4. Click [Management and Monitoring Tools] and then click [Details].

   The [Management and Monitoring Tools] dialog appears.

5. Check the [Network Monitor Tools] check box and then click [OK].

6. The [Windows Components Wizard] dialog box appears. Click [Next].

7. If a message is displayed asking you to insert the operating system disc, follow the instructions on the screen and click [OK].

8. Click [Finish] in the [Windows Component Wizard] dialog box.

9. Close the [Add or Remove Programs] dialog box.

10. Close the [Control Panel].

To start Network Monitor, click [Programs], click [Administrative Tools], and click [Network Monitor]. For information on how to operate Network Monitor, refer to Online Help.

Re-installing the Operation System if Multiple Logical Drives Exist

[Before Re-installing the Operation System]

Be sure to make backup copies before reinstalling the operating system.

[Re-installing the Operation System]

1. Start a clean installation following the procedure described in this manual.
2. Specify the partition where you want to install the operating system when the following message appears:

   > The following list shows the existing partitions and
   > unpartitioned space on this computer.
   >
   > Use the UP and DOWN ARROW keys to select an item in the list.

   * You cannot modify the drive letter of the system or boot volume. Confirm the proper drive letter is assigned and then continue setup.
3. Continue the clean installation following the procedure described in this manual.
4. The drive letter of the reinstalled system may differ from the one of the previous system. If you need to modify the drive letter, modify it according to "Procedure for Modifying the Drive Letter."

[Procedure for Modifying the Drive Letter]

Modify the drive letter of the system or boot volume in the following procedure:

1. Click [Start], right-click [My Computer], and select [Manage] to start [Computer Management].
2. Select [Disk Management] in the left side of the window.
3. Right-click a volume and select [Change Drive Letter and Path...].
4. Click [Yes].
5. Select [Assign a drive letter] and specify the drive letter you want to assign.
6. Click [OK].
7. If the following message appears, click [Yes]:

   > Changing the drive letter of a volume may cause programs to no longer run. Are you sure you want to change this drive letter?

8. Close [Computer Management].

UPDATING THE SYSTEM

Update the system in following cases:

- Installing an additional CPU.
- Modifying the system configuration.
- Recovering the system using the recovery process.

Update from TS Client (Windows Server 2003 x64 Editions)

> **IMPORTANT:** Make sure that the TS client DVD-ROM drive is assigned as a shared network drive..

1. Log on to the system as a user with administrator authority for the TS client.
2. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive of the TS client.
   If the autorun menu appears on the TS client screen, close the menu.
3. Select [Run] from the [Start] menu, enter "DVD-ROM drive name on TS client:\001\win\winnt\w2k3amd\update.vbs" in the [Open] box, and click [OK].
   Follow the messages appearing on the TS client screen.
   If the following screen appears, click [Close].

> **IMPORTANT:** Reconnect to the CPU blade after about five minutes have passed. When the system update is applied, the terminal service connection is automatically disconnected and the CPU blade is restarted.

Update from TS Client (Windows Server 2003)

IMPORTANT: Make sure that the TS client DVD-ROM drive is assigned as a shared network drive.

1. Log on to the system as a user with administrator authority for the TS client.
2. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive of the TS client.
   If the autorun menu appears on the TS client screen, close the menu.
3. Select [Run] from the [Start] menu, enter "DVD-ROM drive name on TS client:\001\win\winnt\dotnet\update.vbs" in the [Open] box, and click [OK].
   Follow the messages appearing on the TS client screen.
   If the following screen appears, click [Close].

IMPORTANT: Reconnect to the CPU blade after about five minutes have passed. When the system update is applied, the terminal service connection is automatically disconnected and the CPU blade is restarted.

Local Update

1. Log on to the system as a user with administrator authority.
2. Insert the NEC EXPRESSBUILDER DVD into the DVD-ROM drive.
3. Click "Setup Windows" in "Menu Items" and select [Update the System].

   Follow the messages appearing on the screen.

NOTE: After the system update is applied, the system is automatically restarted.

IMPORTANT: When the system restarts, remove the NEC EXPRESSBUILDER DVD from the DVD-ROM drive.